

User's Guide

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ME
FIRST!

LEARN
HOW TO
SPEED UP
WINDOWS 3.1
ON
PAGE 81



Microsoft® WORKGROUP ADD-ON FOR WINDOWS™

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(Continued on inside back cover)

Microsoft[®] Workgroup Add-On for Windows[™]

User's Guide

For the Microsoft Windows Operating System

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Contents

What Is Microsoft Workgroup Add-On for Windows?	ix
Using Microsoft Windows for the First Time	x
Upgrading from Microsoft Windows Version 3.1	x
Upgrading from Microsoft Windows for Workgroups	xi
New Features	xii
Network Connectivity and Performance	xii
Sharing Resources: File Manager and Print Manager	xii
Electronic Mail	xiii
Built-In Fax	xiii
Scheduling Appointments Online: Schedule+	xiii
New Network Applications	xiv
Sharing Information: ClipBook Viewer	xiv
Networking Enhancements in Control Panel	xv
Other Windows Documentation	xv
Registering Your Copy of Windows for Workgroups	xvi
Microsoft Product Support Services	xvi
 Chapter 1 A Brief Overview of Microsoft Windows Networking	 1
Connecting Computers Together	1
Organizing Computers into Workgroups	2
Exchanging Information	5
Sharing Resources	6
Connecting to Resources	8
Network Choices	11
What to Do Next	11
 Chapter 2 Setting Up and Starting Windows for Workgroups	 13
Running Setup	13
Choosing the Setup Method You Need	14
Express Setup	15
Custom Setup	15
Starting and Logging On to Windows for Workgroups	16
Logon Names and Passwords	16

Chapter 3 New File Manager and Print Manager Features	19
Setting Up Sharing for Files and Printers	19
Sharing Resources by Using File Manager	20
Changing Drives and Directories	21
Connecting to Shared Directories	21
Sharing Your Directories	23
Displaying the Names of People Using Your Shared Directory	24
Closing Files in a Shared Directory	24
Additional File Manager Toolbar Buttons	25
More Ways to Use File Manager	25
Sharing Printers by Using Print Manager	26
Before You Print	27
Connecting to a Network Printer	27
Sharing Your Printer	29
Choosing the Default Printer	30
Pausing and Resuming Printing	30
Canceling the Printing of a Document	30
Additional Print Manager Toolbar Buttons	31
More Ways to Use Print Manager	31
Chapter 4 Mail	33
Connecting to a Post Office	33
Creating Your Account	35
Signing In to Mail	36
Changing Your Password	37
Sending a Message	37
Reading a Message	38
Replying to a Message	39
Deleting a Message	40
Quitting Mail	41
The Message File	41
Additional Features of Mail	42
Chapter 5 Microsoft At Work PC Fax	43
Setting Up PC Fax	43
Using a Fax Modem Attached to Your Computer	44
Using a Fax Modem on the Network	45
Specifying the Active Fax Modem	46
Sharing Your Fax Modem	46
Stop Sharing a Fax Modem	48

Sending a Fax	48
Adding Fax Numbers to the Personal Address Book	50
Setting Fax Options	50
Managing Outgoing Faxes	51
Receiving a Fax	52
Forwarding a Fax	53
Using Security	54
Sending or Receiving a Password-Secured Fax	54
Establishing and Maintaining Advanced Security	55
Managing Security Keys	56
Sending and Receiving Key-Secured Faxes	58
Tips for Travelers	59
Chapter 6 ClipBook Viewer	61
Using the ClipBook Viewer Window	61
Saving the Contents of the Clipboard	63
Sharing Information with Other People	64
Sharing Local ClipBook Pages	64
Connecting to a ClipBook on Another Computer	65
Embedding or Linking an Object from Another Computer	66
Chapter 7 Network Applications	69
Chat	70
Log On/Off	70
Net Watcher	71
Schedule+	72
WinMeter	73
WinPopup	73
Chapter 8 Customizing Network Settings and Improving Performance	75
Customizing Microsoft Windows Network Settings	75
Customizing Network Settings by Using Control Panel	76
Enabling and Disabling Sharing by Using Setup	80
Improving Performance	81
32-Bit Disk Access	81
32-Bit File Access	82

Chapter 9 Using Other Networks	85
Setting Up Windows for Workgroups to Work with Another Network	85
Connecting to a Directory on a Network Server	86
Connecting to a Network Printer	87
Using Microsoft Windows NT and Microsoft LAN Manager	88
Appendix A Maintaining Mail	89
Creating a Workgroup Post Office	90
Verifying Disk Space	90
Creating the Post Office and the Administrator Account	90
Sharing the Workgroup Post Office	93
Starting Postoffice Manager	94
Adding a Person to the WGPO	94
Modifying an Account	95
Removing an Account	96
Managing Disk Space	96
Checking the Status of Shared Folders	96
Compressing Shared Folders	97
Managing the Mail System Files	97
Backing Up and Restoring the MSMAIL.MMF File	98
Using Mail with Other Message Systems	99
Appendix B Accessibility for People with Disabilities	101
Services for People Who Are Deaf or Hard-of-Hearing	102
Access Pack for Microsoft Windows	102
Keyboard Layouts for Single-Handed Users	103
Documentation on Audio Cassettes and Floppy Disks	103
Products for People Who Are Blind or Have Low Vision	103
Customizing Windows for Workgroups	104
Getting More Information	106
Appendix C Installing Network Hardware	107
Installation Overview	107
1. What You Need	108
2. Configuring Your Network Card	110
Use Default Settings When Possible	110
When to Configure the Card	111
Using Jumpers and Switches to Configure a Network Card	111
How to Determine Which Configuration Settings to Use	112

3. Installing the Network Card	116
Before You Insert the Card	116
Placing the Card in Your Computer	118
Software-Configured Cards	121
4. Connecting Cables	122
Thin Ethernet	123
Thick Ethernet	125
Twisted-Pair Ethernet	128
Token Ring	130
The Next Step	131
Appendix D Configuring Network-Adapter Drivers	133
Installing a Network-Adapter Driver	133
Removing a Network-Adapter Driver	136
Changing Protocols and Network-Adapter Settings	136
Appendix E Troubleshooting	139
Setting Up Windows for Workgroups	139
Your system locks up during the MS-DOS part of Setup.	139
Windows won't start after a successful Setup.	140
Using the Network Features of Windows for Workgroups	142
No network features of Windows for Workgroups are available.	142
Using the Microsoft Windows Network	143
You forget your logon password for the Microsoft Windows Network.	143
Other computers on the network are not listed.	143
You cannot share directories on your CD-ROM drive.	144
A LAN Manager server is not listed.	144
A Windows NT or LAN Manager server is listed, but you cannot connect to it.	145
You need to connect to or share resources before starting Windows.	145
Using Novell NetWare	145
You cannot connect to a Novell NetWare server.	145
Computers or NetWare servers are not listed.	146
Setting Up a Network Card	146
You're trying to install a network card.	147
Using Microsoft Network Diagnostics to Troubleshoot Networking Problems . .	149

Using Mail	150
You cannot create a workgroup post office.	150
The post office administrator forgets his or her password.	151
A user forgets his or her password.	151
A message file is corrupted.	151
Using Microsoft At Work PC Fax	151
You cannot configure or share a modem.	151
You tried to send a fax from an application, but your system locked up.	151
Mail locks up.	152
You add a network modem, but you still can't send faxes.	152
You set up PC Fax, but could not add a fax address to the Personal Address Book.	152
You attached a document to a fax, and the icon for the document flashes.	152
You sent a fax by using a shared modem in someone else's computer, but the fax is waiting in the queue.	152
You want to use a modem speed higher than 9600 bps.	152
Streamlining the CONFIG.SYS and AUTOEXEC.BAT Files	153
Microsoft Support Services	154
The Microsoft Support Network	155
Product Support Within the United States.	155
Product Support Worldwide.	157

Index.	163
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What Is Microsoft Workgroup Add-On for Windows?

Microsoft® Workgroup Add-On for Windows™ adds integrated networking capabilities and additional features to the Microsoft Windows version 3.1 operating system to give you Microsoft Windows for Workgroups version 3.11.

This book describes how to use these networking capabilities and additional features.

This chapter describes how to get started if you are:

- Using Microsoft Windows for the first time or upgrading from versions earlier than version 3.1.
- Upgrading from Microsoft Windows version 3.1.
- Upgrading from Microsoft Windows for Workgroups version 3.1.

Windows for Workgroups version 3.11:

- **Offers networking that's easy to set up, use, and maintain.**

The Setup program detects which network-adaptor you're using, making setting up easy. The familiar Windows interface and new toolbars make connecting to network resources as easy as pointing and clicking. There are many security features, such as password-protected logon.
- **Provides all the software you need to start a cost-effective network.**

Windows for Workgroups version 3.11 provides the networking software you need to gain access to files and printers on other computers and share files and printers on your own computer.

You can communicate easily with other people, using applications such as Mail, Microsoft At Work™ PC Fax, and Schedule+, all included with Windows for Workgroups version 3.11.
- **Integrates easily with server-based systems when you're ready to grow.**

You can setup Windows for Workgroups without a network and add a network later, if needed. You can use a variety of networks, including server-based systems such as Windows NT™ Advanced Server and Novell® NetWare®, giving you room to grow without changing your desktop software.
- **Improves the performance of your computer.**

New 32-bit software components speed up access to network resources by as much as 100% and speed up access to data on a hard disk drive by as much as 50% over Windows version 3.1 and Windows for Workgroups version 3.1.

Using Microsoft Windows for the First Time

If you are setting up Microsoft Windows for the first time or are using a version of Windows earlier than 3.1, read this section.

The following table shows minimum software and hardware requirements.

Component	Requirement
Computer	386SX or higher processor.
MS-DOS	Version 3.3 or later. Version 6.0 or later is recommended. (To check your version, type ver at the command prompt.)
Memory	3 MB of RAM; 4 MB is recommended. With networking capability turned off, only 2 MB are required.
Disk space	10.5 MB of free disk space; 15.5 MB is recommended.
Components	One floppy disk drive. Display adapter (monitor) that works with Windows version 3.1. A color VGA or better resolution monitor is recommended.
Network hardware	To connect your computer to other computers by using the Microsoft Windows Network or other networks, you need cables and a network adapter (network card) that are Microsoft Windows-compatible.
Fax	To send or receive faxes, you need a Class 1, Class 2, or Communications Application Specification (CAS) fax modem or network access to one. You need a Class 1 fax modem for binary file transfers.
Options	Microsoft Mouse or compatible pointing device. A mouse is recommended. Hayes® or compatible modem. Audio board. CD-ROM drive.

If you plan to set up Windows for Workgroups 3.11 *with networking*, read Appendix C of this guide, "Installing Network Hardware," and Chapter 2, "Setting Up and Starting Windows for Workgroups," followed by your *Microsoft Windows User's Guide*.

If you plan to set up Windows for Workgroups 3.11 *without networking*, read Chapter 2 of this guide, "Setting Up and Starting Windows for Workgroups," followed by your *Microsoft Windows User's Guide*.

Upgrading from Microsoft Windows Version 3.1

Before upgrading to Windows for Workgroups version 3.11, make sure your computer system meets the following requirements.

Component	Requirement
Computer	386SX or higher processor.
MS-DOS	Version 3.3 or later. Version 6.0 or later is recommended. (To check your version, type ver at the command prompt.)
Memory	3 MB of RAM; 4 MB is recommended. With networking capability turned off, only 2 MB are required.
Disk space	4.5 MB of free disk space; 9.5 MB is recommended.
Network hardware	To connect your computer to other computers by using the Microsoft Windows Network or other networks, you need cables and a network adapter (network card) that are Microsoft Windows-compatible.
Fax	To send or receive faxes, you need a Class 1, Class 2, or Communications Application Specification (CAS) fax modem or network access to one. You need a Class 1 fax modem for binary file transfers.

If you plan to set up Windows for Workgroups version 3.11 *with networking*, read Appendix C of this guide, “Installing Network Hardware,” and then Chapter 2, “Setting Up and Starting Windows for Workgroups.”

If you plan to set up Windows for Workgroups version 3.11 *without networking*, read Chapter 2 of this guide, “Setting Up and Starting Windows for Workgroups.”

Upgrading from Microsoft Windows for Workgroups

The network hardware that you used with Windows for Workgroups version 3.1 should work with no modifications.

Before upgrading, make sure your computer system meets the following requirements. Then read Chapter 2 of this guide, “Setting Up and Starting Windows for Workgroups.”

Component	Requirement
Computer	386SX or higher processor.
Memory	3 MB of RAM; 4 MB is recommended. With networking capability turned off, only 2 MB are required.
MS-DOS	Version 3.3 or later. Version 6.0 or later is recommended. (To check your version, type ver at the command prompt.)
Disk space	4.5 MB of free disk space; 9.5 MB is recommended.
Fax	To send or receive faxes, you need a Class 1, Class 2, or Communications Application Specification (CAS) fax modem or network access to one. You need a Class 1 fax modem for binary file transfers.

New Features

The networking features of Windows for Workgroups version 3.11 make it easy for you to communicate and share information with other people.

Network Connectivity and Performance

Networking is now much easier.

- You can use Windows for Workgroups version 3.11 with a wide variety of leading network software. Using the Microsoft Windows Network, you can set up a network quickly with other people in your office who are using Windows for Workgroups. If you or other people are using compatible networks, such as Novell NetWare or Banyan® VINES®, you can use Windows for Workgroups version 3.11 to gain access to information on those networks as well. If you're not ready to use a network now, you can easily set one up later from within Windows for Workgroups.
- Network performance is improved. New 32-bit network software speeds performance and conserves memory so that more is available for your MS-DOS-based applications.

Sharing Resources: File Manager and Print Manager

Using File Manager and Print Manager, you can share resources, such as directories and printers. You can also monitor how shared resources are being used.



File Manager now includes the ability to share directories on your computer so that other people can use your files. Also, you can use files and directories that others are sharing. An icon marks directories you are sharing. You can also view the names of people who are using your shared directories.



Using Print Manager, you can designate a printer to be shared so that other people can connect to and print to it. Icons make it easy for you to see which printers are connected to your computer and which printers you are sharing. The printer queue shown in the Print Manager window lists documents that you and others have sent to shared printers.

Using the toolbar in File Manager and in Print Manager, you can perform common file and print management tasks with a click of the mouse. The status bar (at the bottom of the File Manager or Print Manager window) displays information about the task you're performing.

Electronic Mail



Mail

Mail is an application that you can use to exchange files and electronic messages with people on your network. You can also print your messages, organize and store messages in folders, and search for messages.

Using object linking and embedding (OLE), you can embed objects, such as cells from a spreadsheet and text or graphics from a document, within a message.

Built-In Fax



Fax

Windows for Workgroups version 3.11 has built-in fax software, called Microsoft At Work PC Fax. You can send and receive faxes whether or not you're using a network. PC Fax works just like Mail, so it's easy to learn and to use. If you are using the Microsoft Windows Network, you can share a fax modem with other people on the network, and you can send a message to a group of people—to some people via fax, and to some via electronic mail.

You can send and receive faxes from a variety of fax machines and from computers equipped with fax modems. You have a choice of sending and receiving faxes as images or as copies of original documents (such as Microsoft Excel spreadsheets). You have a wide range of options for customizing your faxes, such as delaying their send times until phone rates are lowest or enhancing the image of a fax for printing.

By using the security features, you can ensure that no one but the intended recipient can read the faxes you send. You can also use a digital signature to identify yourself legally as the sender of a fax.

Scheduling Appointments Online: Schedule+



Schedule+

You can use Schedule+ to keep track of appointments and tasks and to record notes to yourself. If you want to carry your schedule with you, you can print copies in a size that fits your personal organizer.

You can also set up meetings with others in your workgroup without leaving your desk, and share your schedule so that others in your group can view it or set up appointments and tasks for you.

New Network Applications

The following network applications are included with Windows for Workgroups version 3.11.



Chat

- **Chat**

You can use Chat to communicate with up to seven other workgroup members at a time by typing messages back and forth.



Net Watcher

- **Net Watcher**

You can use Net Watcher to monitor how other people are using your shared resources, such as files, directories, and printers. You can also view an event log that shows which resources have been used at what time.



WinMeter

- **WinMeter**

You can use WinMeter to monitor the performance of your system. WinMeter shows how much of your processing time is taken up by your tasks and by the tasks of people who are using your shared resources.



WinPopup

- **WinPopup**

You can use WinPopup to send and receive messages to and from another person or computer, or you can send a message simultaneously to all members of a workgroup. WinPopup can notify you when a printer has finished printing a document.



Log On/Off

- **Log On/Off**

You can log on to or off of Windows for Workgroups at any time, making it easy for more than one person to use a computer and protecting your resources that have passwords.



Network Setup

- **Network Setup**

You can choose which network you want to use, set up file and printer sharing, or change network drivers.

Sharing Information: ClipBook Viewer



ClipBook
Viewer

A Local ClipBook provides a personal notebook to store information you want to move, save, or use in other places. You can use your and others' Local ClipBooks to share information. Combined with the powerful tool of object linking and embedding (OLE), ClipBook Viewer makes it possible to keep shared information accurate and up-to-date.

Networking Enhancements in Control Panel

Control Panel has new features that help you configure your network hardware and Microsoft Windows Network software settings.



Network

Using the Network option in Control Panel, you can:

- Change your computer name and the workgroup you belong to.
- Provide a comment about your computer that other people can view when browsing through a list of workgroup computers.
- Change your logon password.
- Specify how much of your central processing unit (CPU) time is allocated to running applications and to sharing information and printers with other workgroup members.
- Track how your shared resources are being used.
- Specify Windows for Workgroups startup settings.



Fax

Using the Fax option in Control Panel, you can:

- Set up your network for sending and receiving faxes.

Other Windows Documentation

This guide is only part of the documentation that describes Windows for Workgroups version 3.11. There is also an online Tutorial and an extensive online Help system. In addition, several online documents (formatted for use with Write, an application included with Windows) are copied to your hard disk during Setup.

Note Your Windows version 3.1 or Windows for Workgroups version 3.1 documentation provides information about basic skills you need to use Windows. Because Windows for Workgroups version 3.11 includes enhancements and new applications, there may be minor differences between the illustrations in your version 3.1 documentation and what you see on your screen. Note that because Windows for Workgroups runs in enhanced mode only, references to standard mode in the *Microsoft Windows User's Guide* are not applicable.

The following table lists the available online documents.

Filename	Contents
SETUP.TXT	Information about software and hardware configurations that require special handling in order for you to successfully set up and start Windows for Workgroups version 3.11. (You can view this file by using any text editor.)
README.WRI	Information updated after this guide was printed.
PRINTERS.WRI	Information about configuring particular printers and fonts.
NETWORKS.WRI	Information about running Windows for Workgroups version 3.11 with other networks.
MAIL.WRI	Procedures for modifying settings in the MSMAIL.INI file (for advanced users only).
SYSINI.WRI	Procedures for modifying settings in the SYSTEM.INI file (for advanced users only).
WININI.WRI	Procedures for modifying settings in the WIN.INI file (for advanced users only).

Registering Your Copy of Windows for Workgroups

Please take a moment to fill out and mail the registration card you received with Windows for Workgroups. Registering Windows for Workgroups entitles you to the following additional benefits:

- Notification of upgrades or revisions to Windows for Workgroups. By receiving timely notices directly from Microsoft, you'll be among the first to know about upgrades.
- Notification when Microsoft releases new Windows-related products.

Microsoft Product Support Services

Microsoft offers a variety of support services to help you get the most from your Microsoft product. See the card enclosed with Windows for Workgroups version 3.11, or "Microsoft Support Services" in Appendix E, "Troubleshooting," for a summary of these services.

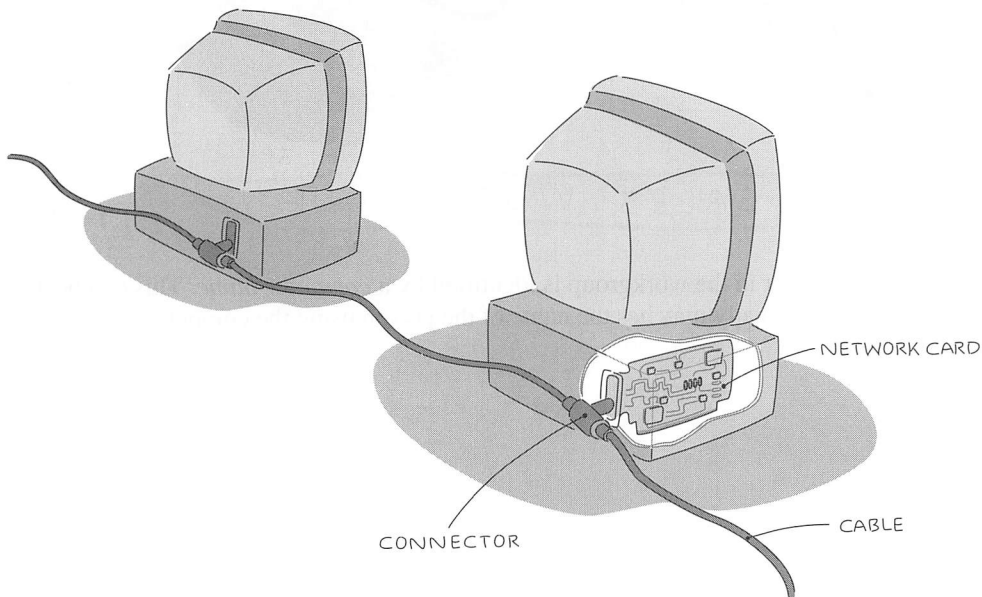
CHAPTER 1

A Brief Overview of Microsoft Windows Networking

This chapter contains an introduction to the basic concepts of the Microsoft® Windows™ for Workgroups version 3.11 operating system and the Microsoft Windows Network, such as workgroups, resources, sharing, and connecting. When you are familiar with these concepts, you can take better advantage of Windows for Workgroups features.

Connecting Computers Together

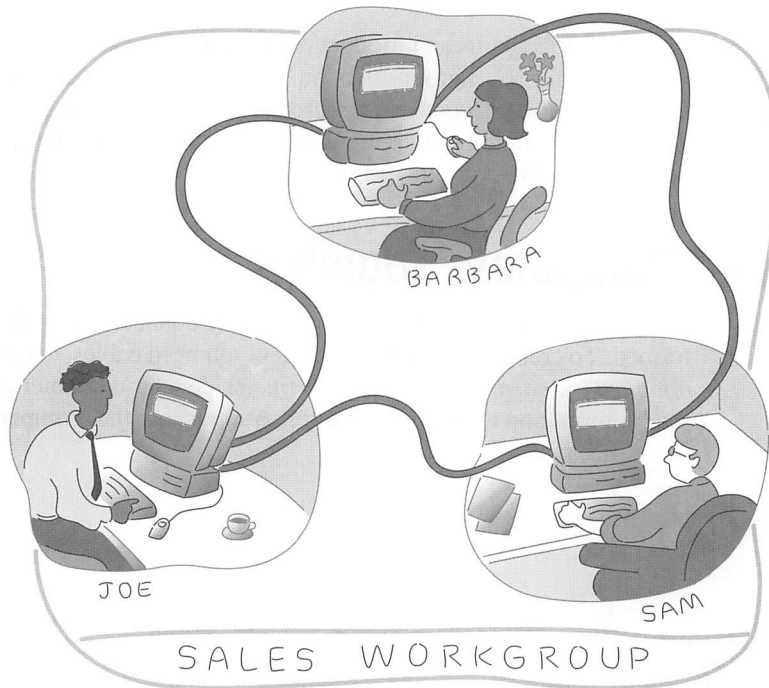
When two or more computers are physically connected together, a *network* is formed. To connect computers together, you need cables, connectors, and *network adapters*, or *cards*. A network card fits inside your computer and enables you to send information to and receive information from other computers.



A network can include a few computers within a single department or many computers in several departments within your company. Using Windows for Workgroups, you can take full advantage of your network.

Organizing Computers into Workgroups

A network can contain one or more workgroups. A *workgroup* is a group of connected computers that is organized for a purpose. For example, a workgroup named SALES might be organized for everyone in your company's sales department.

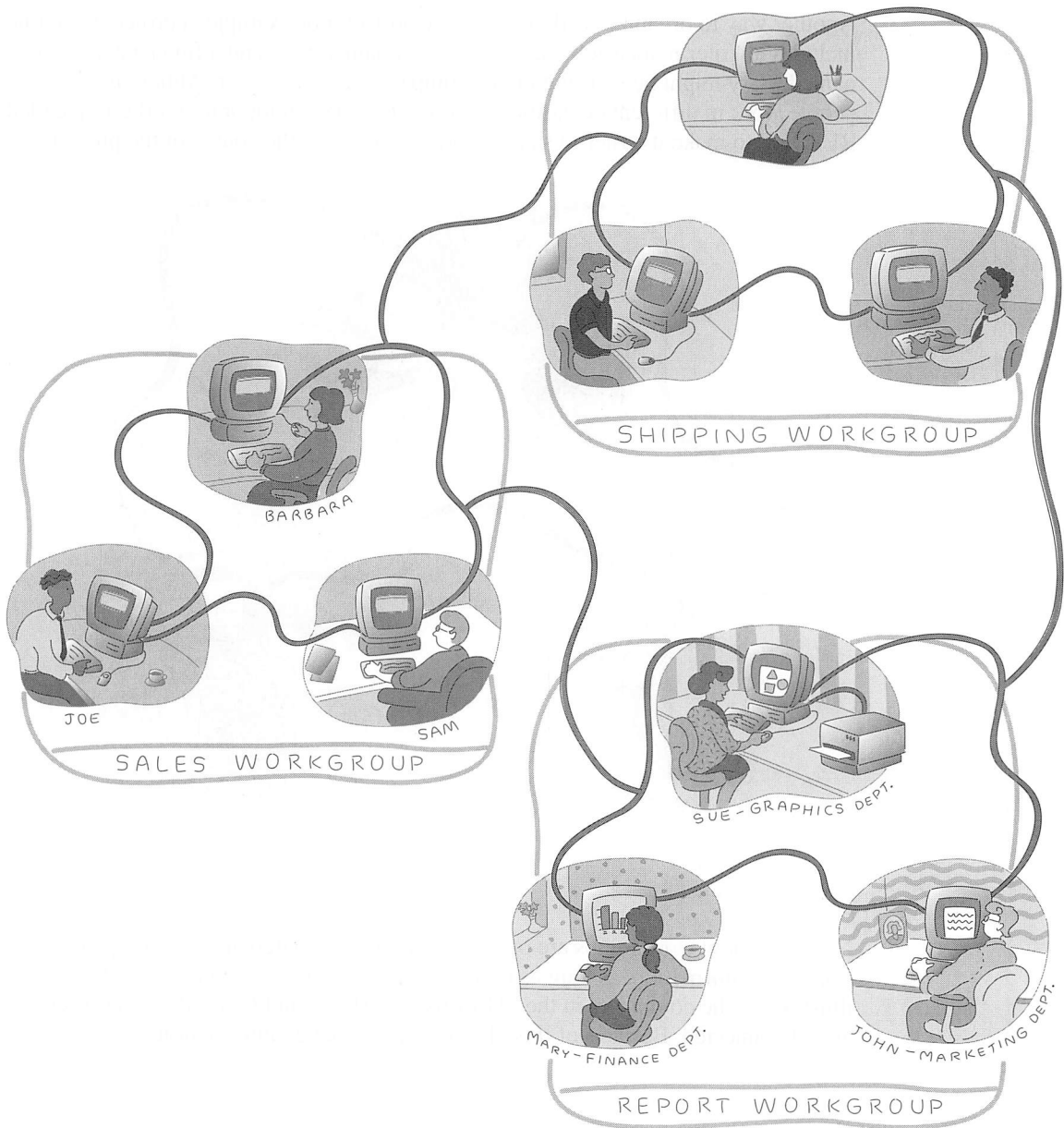


Each computer in the workgroup is identified by a *computer name*. This can be any name, but it usually matches the name of the person using the computer.

Another way to organize workgroups is by project. For example, a project team that includes a writer named John, a graphic artist named Sue, and a financial analyst named Mary might be working on the company's annual report. Although these people work in different departments, they can create a temporary workgroup called REPORT to make it easier to share information during the course of the project.



No matter how workgroups are organized, all the computers in your company can exchange information, as long as they are connected. For example, in the following illustration, the computers in the SHIPPING, SALES, and REPORT workgroups are all connected. Because of this, they can all exchange information.



A workgroup makes it easier for the people who are in it to find and use shared resources. You don't need to change the location of computers to form a workgroup. A workgroup is formed just by giving all the computers in the group the same workgroup name. You can do this when you set up Windows for Workgroups or later.

Exchanging Information

By using Windows for Workgroups, sharing information is easy. For example, although they work in different departments, John, Sue, and Mary can take turns working on the company's annual-report document without leaving their desks or passing around a floppy disk. They can even design the report so that each time someone updates it on one computer, the information is automatically updated on every computer that contains a copy of the report.



In this example, John, who works in the marketing department, writes the text for the annual report.

Sue, who works in the graphics department, opens the file and adds the illustrations.

Mary, who works in the finance department, opens the file and adds financial information. Then she prints a copy of the report, using Sue's printer.

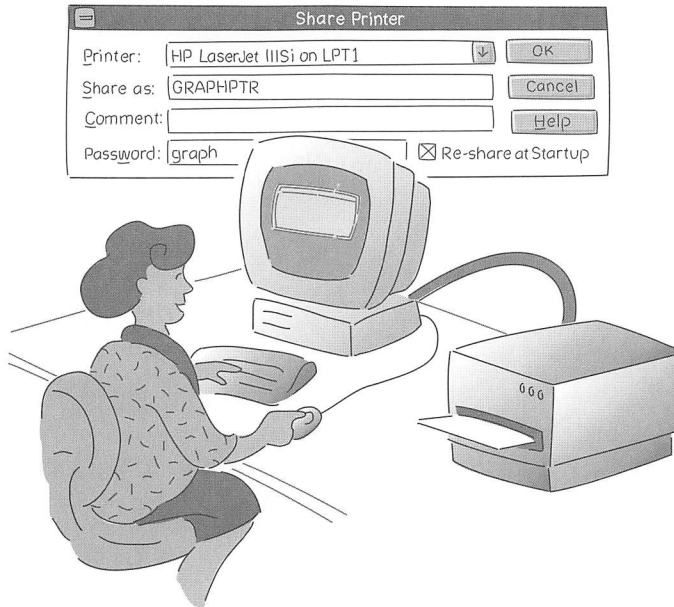
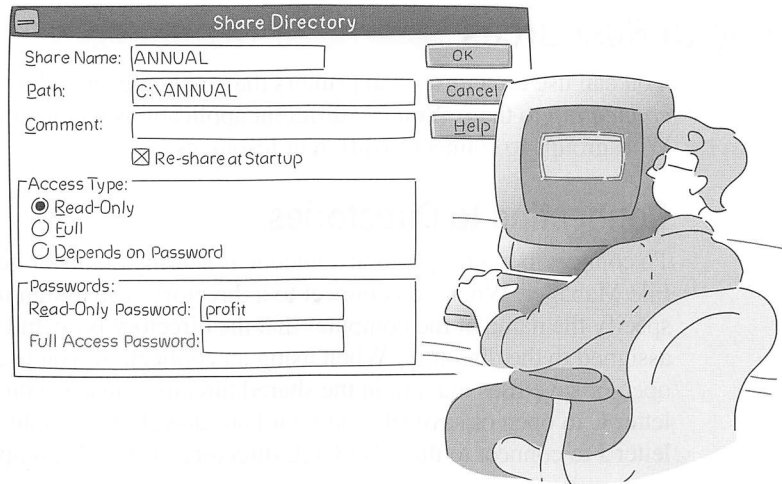
Finally, John sends an electronic mail message notifying reviewers that the annual report is ready for them to see. John can even include the entire report within the mail message or use Windows for Workgroups to fax the report to reviewers who are not in the office.

Sharing Resources

A *resource* is an item, such as a directory or printer, that you and others can use. If you have such a resource, you can make it available to others by *sharing* it. If you do not designate your resource as shared, only you can use it.

When you share a resource, you assign a *share name* to it. Just as the computer name you assign identifies your computer to other people, the share name identifies the resource you are sharing.

You can determine which people use your shared resource by assigning it a *password*. When you share your directories, you can assign different levels of access that require different passwords. If you do not assign a password, the resource is available to anyone using the network.



John assigns the share name ANNUAL to his ANNUAL directory. The share name matches the name of the directory, for easy identification. John assigns read-only access and a password to his directory. Only those who know the password can view his files.

Sue assigns the share name GRAPHPTR and a password to her graphics printer. Only those who know the password can print to her printer.

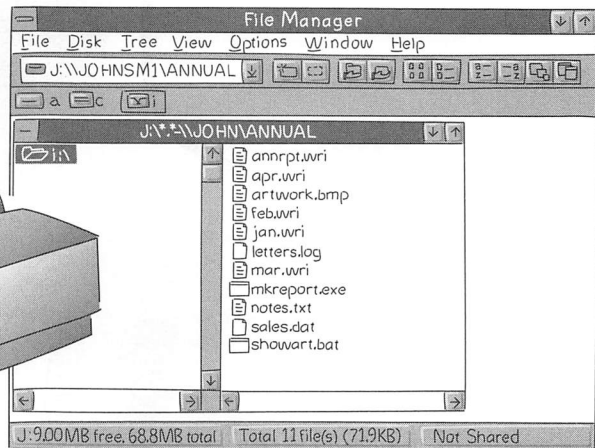
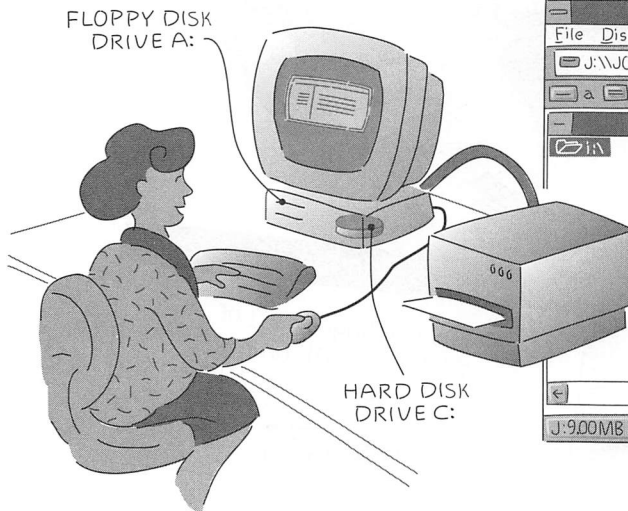
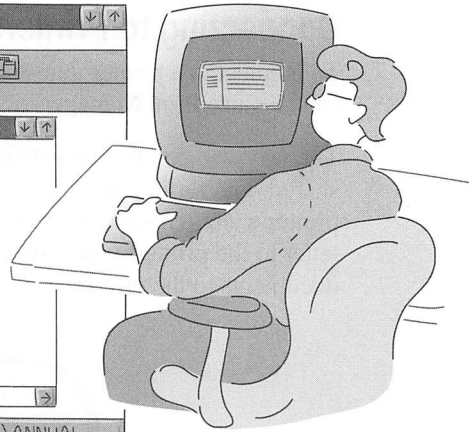
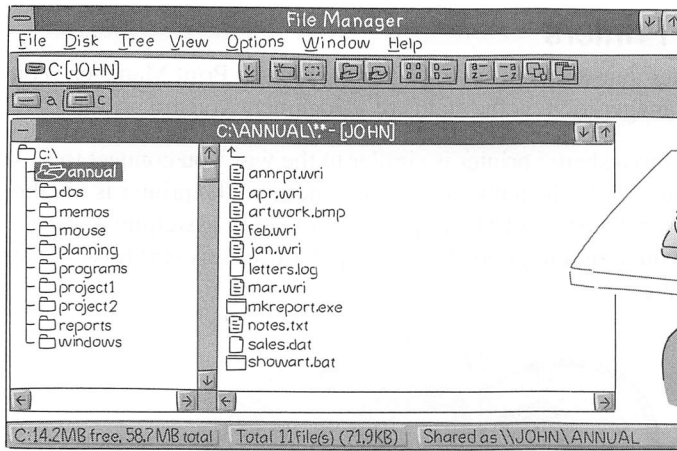
Connecting to Resources

You can use directories and printers that are being shared by other people by *connecting* to them. You use different applications included with Windows for Workgroups to connect to different resources.

Connecting to Directories

To connect to a directory that someone is sharing on his or her computer, you use File Manager. When you connect to a directory, you assign it a drive letter, and specify the name of the computer that the directory is on and the share name assigned to the directory. When using an application, you use this drive letter to open or save files that are in the shared directory, just as you may use the drive letter C to open or save files on your hard disk. For example, Sue can use the drive letter J to connect to the ANNUAL directory on John's computer.

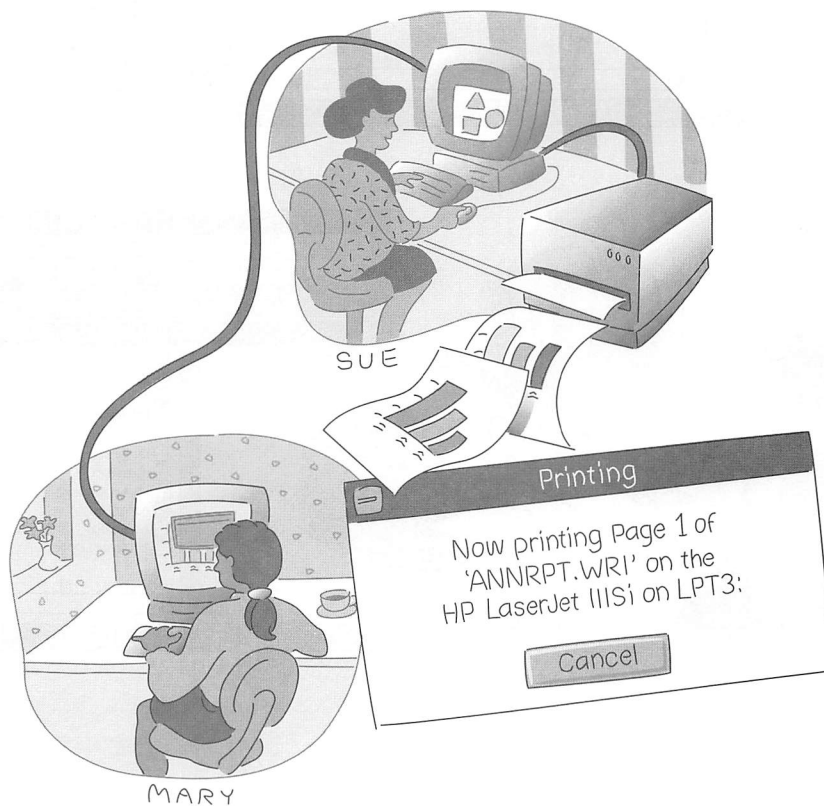
If the directory is password protected, you also need to type the password to connect to the directory.



Connecting to Printers

To connect to a printer that someone else is sharing, you use Print Manager. You can also use Print Manager to view the status of a document you are printing.

The way you connect to a shared printer is similar to the way you connect to a shared directory: You specify the name of the computer that the printer is on, the printer's share name, and a password (if required). Instead of assigning a drive letter to the printer, you assign it a port. Your computer uses this port to send your documents to the printer.



Network Choices

The Microsoft Windows Network is part of Windows for Workgroups. You can also connect your computer to other networks, such as the Microsoft Windows NT™ operating system, Windows NT Advanced Server, Microsoft LAN Manager, Novell® NetWare®, 3Com® 3+Open®, DEC® Pathworks®, or IBM® LANServer. When your computer is connected to a network, you have access to shared resources on the network, and, depending on the network, other people may have access to shared resources on your computer.

Other networks might use different terms to describe how the network is organized. With some networks, the term *domain* is used instead of *workgroup* to describe groups of computers. The term *server* may be used for a computer that is primarily used to provide shared resources, and *workstation* for a computer that is used by an individual and does not provide shared resources for other people.

For more information, see Chapter 9, “Using Other Networks.”

What to Do Next

Now that you know what workgroups and resources are and you have an overview of how to share your own resources and connect to resources on other computers, you are ready for the next step: preparing your computer to exchange information and resources.

You need to do the following:

1. Install a network card and connect your computer to the network.

For information, see Appendix C, “Installing Network Hardware.”

2. Set up Windows for Workgroups on your computer.

For information, see Chapter 2, “Setting Up and Starting Windows for Workgroups.”

3. Start Windows for Workgroups, and then log on.

Logging on identifies you to other people using the network, and gives you access to all the networking features in Windows for Workgroups.

[illegible]

1. *How many times have you been in a situation where you felt that you were being treated unfairly?*
 2. *How many times have you been in a situation where you felt that you were being treated unfairly?*
 3. *How many times have you been in a situation where you felt that you were being treated unfairly?*
 4. *How many times have you been in a situation where you felt that you were being treated unfairly?*
 5. *How many times have you been in a situation where you felt that you were being treated unfairly?*
 6. *How many times have you been in a situation where you felt that you were being treated unfairly?*
 7. *How many times have you been in a situation where you felt that you were being treated unfairly?*
 8. *How many times have you been in a situation where you felt that you were being treated unfairly?*
 9. *How many times have you been in a situation where you felt that you were being treated unfairly?*
 10. *How many times have you been in a situation where you felt that you were being treated unfairly?*

"*Wiederholte und*" *Wiederholte und* *Wiederholte und*

[illegible]

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bioactive compounds in the diet, and the role of the gut microbiota in the metabolism of these compounds.

RECEIVED THE 10th JANUARY 1964

Mathematics 2021, 9, 1093

1. The first step is to identify the problem. In this case, the problem is that the company is not meeting its sales targets.

Mathematics 2020, 8, 100

any party had the right to file a request for a confidential source and
any party had the right to file a request for a confidential source.

C H A P T E R 2

Setting Up and Starting Windows for Workgroups

This chapter describes how to set up the Microsoft® Windows™ for Workgroups version 3.11 operating system on your computer.

Running Setup

During Setup, your computer system is analyzed to determine whether it meets minimum system requirements. If your system does not meet these requirements, or if it contains features that are incompatible with the Setup program or Windows for Workgroups, a warning message is displayed.

Caution If you use any pop-up message programs that print directly to your screen, such as a printing notification message, make sure you turn the programs off before you start Setup. Such programs are incompatible with Setup.

If you are setting up the full Windows for Workgroups version 3.11 product, you can choose Express Setup or Custom Setup. It is recommended that you use Express Setup. Both methods are described in the following sections.

If you are using Microsoft Workgroup Add-On to upgrade a previous version of Windows to Windows for Workgroups version 3.11, Express Setup is the only option. You must set up Windows for Workgroups in the same directory as the previous version.

► **To set up Windows for Workgroups**

1. Insert Setup Disk 1 in a floppy disk drive.
2. At the command prompt, type the letter of the drive you're using, followed by a colon (:), and then press ENTER. For example:

```
C> a:
```
3. Type **setup** and then press ENTER.
4. Follow the instructions on the screen.

Note If you have problems setting up, see Appendix E, "Troubleshooting."

Choosing the Setup Method You Need

This section describes the two methods of setting up Windows for Workgroups version 3.11 on your computer.

If you will be using Windows for Workgroups with a network, you need to know the following things, regardless of whether you use Express or Custom Setup:

- The type of network you want to run with Windows for Workgroups.

If you have no network software already installed on your computer, Setup can install the Microsoft Windows Network.

If you already have a network installed, Windows for Workgroups will be set up to work with it. Networks you can use together with, or in place of, the Microsoft Windows Network include Novell® NetWare® and Banyan® VINES®.

You can also use the Microsoft Windows Network to gain access to shared resources on networks that are compatible with Microsoft LAN Manager, such as the Microsoft Windows NT™ operating system, Windows NT Advanced Server, 3Com® 3+Open®, DEC® Pathworks®, and IBM® LANServer.

You can also use any network that is 100% MSNet-compatible instead of the Microsoft Windows Network, or any network whose manufacturer provides Windows network drivers. For more information, see your network documentation and the NETWORKS.WRI online document.

- The type of network adapter (card) you are using.
- You may also need to specify the interrupt request level (IRQ), base I/O port, and base memory address for your network adapter if these settings are not detected during Setup.

Note For information about installing a network adapter, see Appendix C, “Installing Network Hardware.” If you need to use multiple network adapters, you must either run Custom Setup or set up the additional adapters later from within Windows.

Express Setup

When you use Express Setup, all you do is type your name, answer a few basic questions (such as what type of printer and network card you have), and insert disks when requested.

To use Express Setup, you need to know the following things:

- What type of printer you have, if any. This includes any network printers you intend to use.
- Which port your printer is connected to.

Note A *port* connects hardware (such as a printer or mouse) to your computer. There are two kinds of ports: *parallel* (such as LPT1) and *serial* (such as COM1). A port can be a socket located on the front or back of your computer, or it can be an internal connection, defined by the software, such as your system connection to a network printer.

Custom Setup

Custom Setup is for experienced computer users who want to alter the standard Windows for Workgroups configuration. For example, if you want to control how your CONFIG.SYS and AUTOEXEC.BAT files are modified, use this method.

If you have limited space on your hard disk, you can use Custom Setup to choose which optional Windows components (or individual files) you want to set up.

During Custom Setup, you are prompted to verify or specify the following:

- The type of computer you are using
- Your display (monitor) type
- Your mouse, if you are using one (highly recommended)
- Your keyboard and keyboard layout
- The language you will work in
- Which optional Windows components to set up

- The printer and printer port you use, including network printers
- Which applications on your hard disk you want to run with Windows
- Changes to your AUTOEXEC.BAT and CONFIG.SYS files, if necessary

Starting and Logging On to Windows for Workgroups

After running Setup, you are prompted to either restart your computer or return to the command prompt. You should restart your computer before running Windows for Workgroups.

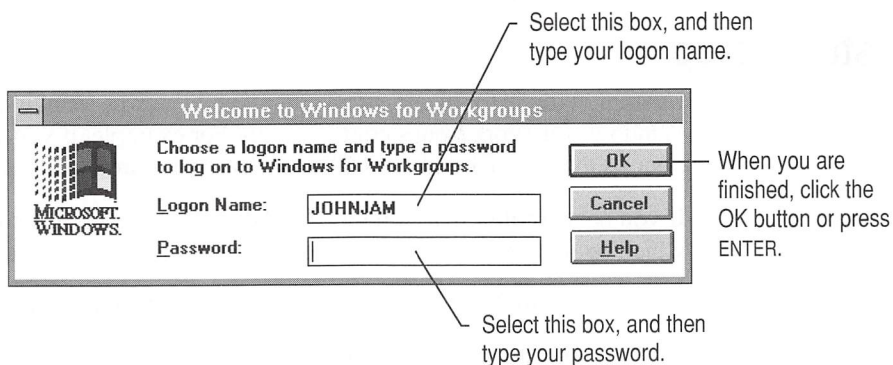
► To start Windows for Workgroups

- At the command prompt, type **win** and then press ENTER.

Logon Names and Passwords

When you start Windows for Workgroups, the logon dialog box appears, displaying a *logon name* that matches your computer name. You can use this name or type a new one. If several people use your computer, each person can have his or her own logon name.

The following illustration shows the logon dialog box, with the logon name Windows for Workgroups would assign if your name were John James.



► **To log on**

1. In the logon dialog box, type a logon name. Or use the default logon name that Windows for Workgroups supplies.
2. If you want to create a logon password, type a password.
3. Choose OK.

The first time you log on to Windows for Workgroups and any time you log on using a new logon name, you are prompted to create a *password-list file*. You use the passwords in this list to connect to any shared resources, such as workgroup printers, that require passwords.

If you choose to create a password-list file, the password for each shared resource you connect to is added to the list. You then do not have to type the password each time you connect to that resource. If you choose not to create a password-list file, you must type the password every time you connect to a shared resource that requires one. When you log off of Windows for Workgroups or off of the Microsoft Windows Network, the password list is “locked” so that nobody else can use it. Each person who uses your computer has his or her own password-list file.

To protect your password list, you can use a *logon password*. When you log on, you supply this password. This unlocks your password list and restores your connections. Your logon password can contain up to 14 characters. Your password should be easy to remember and should be changed periodically for security. For information about changing your password or creating one at a later time, see Chapter 8, “Customizing Network Settings and Improving Performance.”

If you choose to create a password list and you do not specify a logon password, anyone can start your computer and gain access to these connections, because the password list will be unlocked automatically and the password-protected connections will be restored.

1. The first thing I noticed when I stepped out of the plane was the fresh air. It felt like I had been in a bubble for the last few days.

2. The second thing I noticed was the sound of the birds. They were singing so beautifully, it was like a symphony.

3. The third thing I noticed was the smell of the flowers. They were so fragrant, it was like a warm blanket.

4. The fourth thing I noticed was the taste of the food. It was so delicious, it was like a dream.

5. The fifth thing I noticed was the feeling of the sun. It was so warm, it was like a hug.

6. The sixth thing I noticed was the sight of the mountains. They were so majestic, it was like a painting.

7. The seventh thing I noticed was the sound of the water. It was so soothing, it was like a lullaby.

8. The eighth thing I noticed was the feeling of the wind. It was so refreshing, it was like a breath of fresh air.

9. The ninth thing I noticed was the sight of the stars. They were so bright, it was like a galaxy.

10. The tenth thing I noticed was the feeling of the earth. It was so solid, it was like a foundation.

11. The eleventh thing I noticed was the sound of the rain. It was so rhythmic, it was like a drum.

12. The twelfth thing I noticed was the feeling of the snow. It was so soft, it was like a blanket.

13. The thirteenth thing I noticed was the sight of the clouds. They were so white, it was like a sea of clouds.

14. The fourteenth thing I noticed was the feeling of the moon. It was so bright, it was like a star.

15. The fifteenth thing I noticed was the sound of the wind. It was so loud, it was like a roar.

C H A P T E R 3

New File Manager and Print Manager Features

This chapter describes File Manager and Print Manager enhancements in Microsoft® Windows™ for Workgroups version 3.11. For basic information about File Manager and Print Manager, see your Windows or Windows for Workgroups user's guide.

You can *share* your files, directories, applications, and printer with other people and gain access (*connect*) to the resources that others are sharing.

File Manager and Print Manager now include a *toolbar*. Buttons on the toolbar are available for common tasks, such as specifying what information is displayed for each file, or starting and stopping print jobs. You can also perform these tasks by using File Manager and Print Manager menu commands.

Setting Up Sharing for Files and Printers

If you did not select the file and printer sharing options when you set up Windows for Workgroups, you can set up your computer to share resources now.

Note If you are not using the Microsoft Windows Network, you will not be able to share your resources. Also, if your network administrator has disabled file and/or print sharing for your network, you cannot share your files and/or printers.

► **To set up Windows for Workgroups to share files and printers**

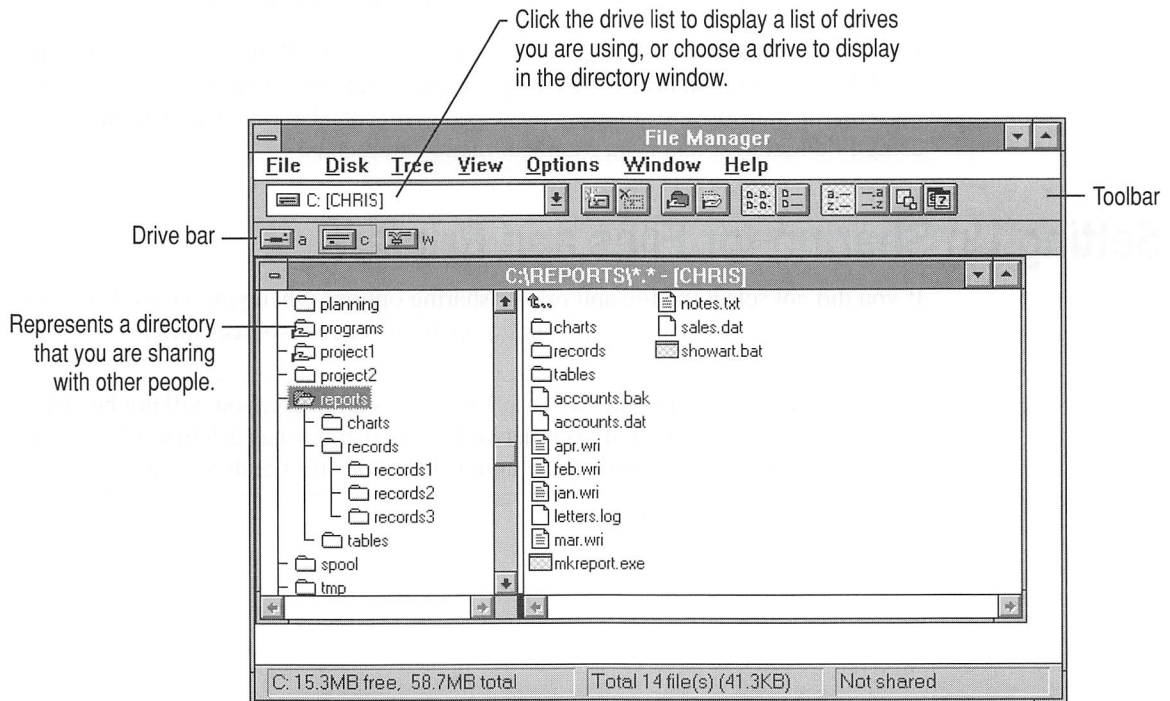
1. In the Network group, choose the Network Setup icon.
2. In the Network Setup dialog box, choose Sharing.
3. To make sharing available, select one or both check boxes, and then choose OK.
4. In the Network Setup dialog box, choose OK.

A dialog box appears, notifying you that your SYSTEM.INI file has been modified. When you choose OK again, a dialog box appears, prompting you to restart Windows.





5. Choose Restart Windows to restart.

Sharing Resources by Using File Manager

Using the Microsoft Windows Network, you can share your directories with other people and connect to directories that other people are sharing. The File Manager window includes some new items relating to sharing resources.



The following table shows toolbar buttons and commands available for managing shared resources.

Use this button	Or this command from the Disk menu	To
	Connect Network Drive	Connect to a shared directory.
	Disconnect Network Drive	Disconnect from a shared directory.
	Share As	Share a directory with other people or add or change a comment or password.
	Stop Sharing	Stop sharing a directory with other people.

Changing Drives and Directories

The files you want to work with may be on a different drive or in a different directory. The File Manager toolbar enables you to easily view and work with the files you want.

► To change the current drive by using the toolbar

- In the list of drives on the toolbar, select the drive you want. The contents of the active directory window change to reflect the new drive. You can also click a drive icon in the drive bar. Or you can double-click the icon to create a new directory window that displays information about the new drive.

You can also press and hold down CTRL while typing the letter of the drive you want. This method works even if the drive bar is not displayed.

Connecting to Shared Directories

By using File Manager, you can connect to directories other people are sharing.

When you connect to someone else's shared directory, File Manager assigns the directory the next available drive letter (or you can assign a letter of your choice). This creates a *network drive*. After you are connected to a shared directory, you can use the resulting network drive as you would any other drive.

When you assign a network drive to a shared directory, you might need to know the shared directory's *path*. This path contains the *computer name* and the *share name*, with the format `\computername\sharename`. For example, the path `\HEADQTRS\TELLER1` identifies HEADQTRS as the computer name and TELLER1 as the share name.

If you are using Novell® NetWare® with Windows for Workgroups, see Chapter 9, "Using Other Networks," for information about connecting to shared directories.



► To connect to a shared directory

1. On the toolbar, click the Connect Network Drive button. Or choose Connect Network Drive from the Disk menu.
2. If you want to use a drive letter different from the one shown in the Drive box, open the list, and then select the letter you want. Or type the letter.
3. In the Path box, type the shared directory's path. Or, if you want to use a path that you've used recently, open the Path list, and then select a path.

If the Always Browse check box is selected, the Show Shared Directories On box appears each time you use the Connect Network Drive dialog box. If you clear the Always Browse check box, you can choose Browse to see the Show Shared Directories On box.

In the Show Shared Directories On box, you can expand (choose) a workgroup, select a computer listed below the workgroup name, and then, from the Shared Directories box, select a shared directory.

To display directories on a computer not in your workgroup, type `\\computername` and then choose OK. Select the shared directory you want, and then choose OK.

4. To connect to the selected directory, choose OK.

For help, choose the Help button or press F1 while using the dialog box.

If the Open New Window On Connect command (on the Options menu) is in effect, a new directory window appears, displaying the contents of the network drive. This command is in effect by default.

You can also specify whether to automatically connect to the network drive every time you start Windows for Workgroups. For more information about this and other features, choose the Help button or press F1 while using the Connect Network Drive dialog box.



► To disconnect from a network drive

1. On the toolbar, click the Disconnect Network Drive button. Or choose Disconnect Network Drive from the Disk menu.
2. In the list, double-click the drive you want to disconnect from. Or select it, and then choose OK.

You can extend the selection to include more than one drive.

Sharing Your Directories

With the Microsoft Windows Network, you can share your directories, making the files in them available to other people. You can use passwords to protect your files. If you assign a password to a shared directory, only those people who know the password can use files in that directory. If you do not assign a password, anyone on the network can use the files.

You can also control whether people who have access to your shared directory can make changes to the files in it.

Use this setting	To enable others to
Read-Only	Read files and run applications.
Full	Create, change, delete, rename, move, or read files, and run applications.
Depends On Password	Have either read-only access or full access, depending on the password they use.

Note If you select Depends On Password, and leave one password blank, people requesting access to your directory will always be prompted to enter a password. Pressing ENTER at the password prompt will give them access to the file.



► To share a directory or change information about your shared directory

1. In the directory window, select the directory you want to share or modify.
2. On the toolbar, click the Share As button. Or choose Share As from the Disk menu.
3. In the Share Name box, type the name you want to assign to this directory. Or you can use the name shown.
4. If you want to control access to files, select the appropriate option.
5. If you want password protection, type a password.

You can also specify a comment to appear next to the directory in the Connect Network Drive dialog box and specify whether the directory will be automatically shared every time you start Windows for Workgroups.

6. Choose OK.

For help, choose the Help button or press F1 while using the dialog box.



► **To stop sharing a directory**

1. On the toolbar, click the Stop Sharing button. Or choose Stop Sharing from the Disk menu.

If this button or command appears dimmed, no directories are shared.

2. In the list, double-click the name of the directory you want to stop sharing. Or select it, and then choose OK.

You can extend the selection to include more than one directory.

Caution If other people are connected to your directory when you stop sharing it, a dialog box appears, prompting you for confirmation. If you choose the Yes button, these people may lose their data.

Displaying the Names of People Using Your Shared Directory

You can find out who is using files in your shared directory. For example, if you cannot open a file in your shared directory because someone else has it open, you may want to find out who that person is.

► **To find out who is using files in a shared directory**

1. In the directory window, select the directory. Or, if you only want to find out who is using a file, select the file.
2. From the File menu, choose Properties.
3. Choose Open By.

The Open Files dialog box is updated every few seconds.

Note Also, you can use the Net Watcher application to display names of people using a shared directory. For more information, see Help for Net Watcher.

Closing Files in a Shared Directory

You can close files in a directory you are sharing, even if someone is using them. For example, if you cannot open a file because someone is using it, you can close the file so that other people, including yourself, can use it.

► **To close files in a shared directory**







1. In the directory window, select the shared directory. Or, if you only want to close a file, select the file.
2. From the File menu, choose Properties.

- 3. Choose Open By.
- 4. In the Network Properties dialog box, select the file or files you want to close, and then choose Close Files.
A dialog box appears, prompting you to confirm the closure.

Caution If you choose Yes, anyone using the file may lose data.

Additional File Manager Toolbar Buttons

In addition to using some toolbar buttons to manage and view shared resources, you can use the following buttons to control how files are displayed.

Use this button	To
	Display only the names of each file.
	Display all the information about each file.
	Display files in alphabetic order, based on the filename.
	Display files in alphabetic order, based on the filename extension.
	Display files in order of size, from the largest to the smallest.
	Display files in chronological order, based on the last date each file was changed.

Note These buttons affect only the list of files in the active directory window. If the directory window is displaying only the directory tree, the buttons do not affect the window.



If you are using Mail, you can send mail directly from File Manager by using either the Mail menu or the Send Mail button on the toolbar. For more information about sending mail, see Chapter 4, “Mail.”

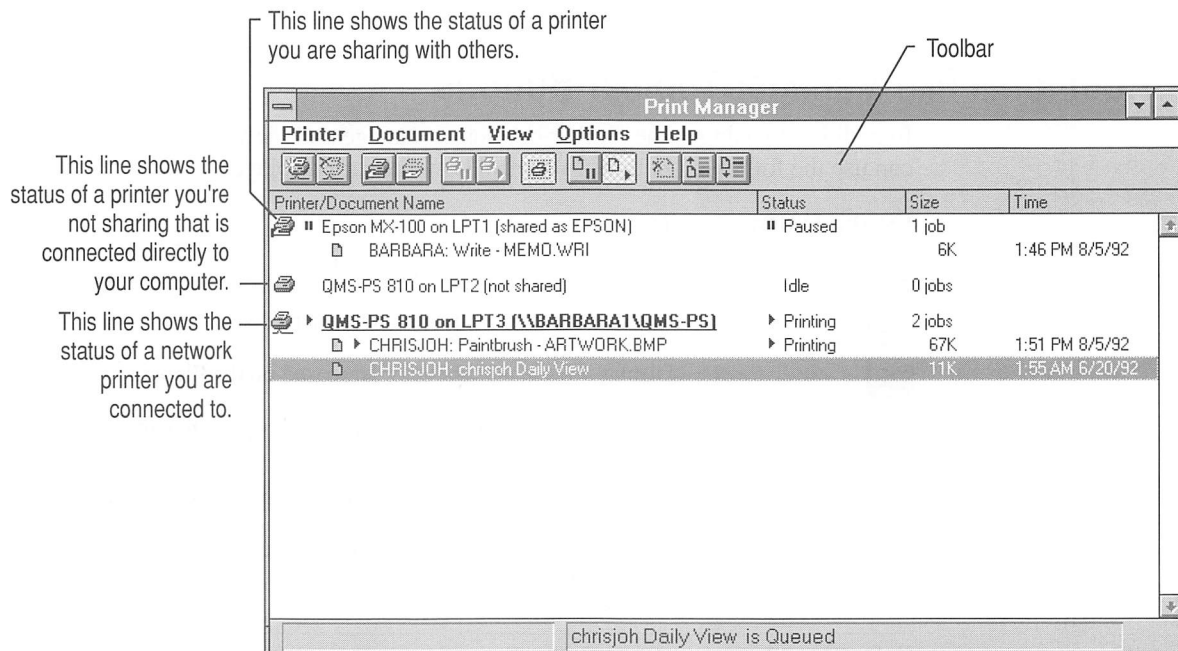
More Ways to Use File Manager

There are many other features that you can use to customize File Manager to your needs and to perform various tasks. For more information, see your Windows or Windows for Workgroups user’s guide, or see Help for File Manager.

Sharing Printers by Using Print Manager



You can share your own printer with others and connect to *network printers* that other people have shared.



When you start Print Manager, the following window appears.



- Each printer has its own *print queue*, which is a list of documents, both yours and others', that are printing or waiting to print.
- You can use the buttons on the toolbar to manage shared printers and perform common printing tasks. These buttons are shortcuts for menu commands.

The following table shows toolbar buttons and commands available for managing shared printers.

Use this button	Or this command from the Printer menu	To
	Connect Network Printer	Connect to a shared printer.
	Disconnect Network Printer	Disconnect from a shared printer.

Use this button	Or this command from the Printer menu	To
	Share Printer As	Share your printer with other people, or add or change a comment or password.
	Stop Sharing Printer	Stop sharing your printer with other people.

Note Print Manager must be running for you to share your printer. It is recommended that you do not put Print Manager in your Startup group.

Before You Print

With network printers, as with your own printer, you must do two things before you can print:

1. Set up the printer driver on your computer. For information, see “Setting Up a Printer” in your Windows or Windows for Workgroups user’s guide, or see Help for Print Manager.
2. Connect to the printer. For information about how to connect to a network printer, see the following section.

Connecting to a Network Printer

Your own (*local*) printer is physically connected by a cable to a parallel or serial *port* in the back of your computer. The port is represented by a name in Windows (such as LPT1, LPT2, COM1, or COM2).

A network printer is connected to a port in the back of another computer in a workgroup, and is connected to a port name in your computer by network hardware and software.

When a port name in your computer is connected to a network printer, your computer does not need port hardware corresponding to that name. This allows you to use multiple network printers, even though your computer does not have a physical port for each one. For more information about using multiple network printers, see Help for Print Manager.

When you connect to a network printer, you might need to know the network printer’s *path*. This path contains the *computer name* and the *share name*, with the format `\computername\sharename`. For example, `\HEADQTRS\PRINTER1` identifies HEADQTRS as the computer name and PRINTER1 as the share name.

If you are using Novell NetWare with Windows for Workgroups, see Chapter 9, “Using Other Networks,” for information about connecting to shared printers.



► **To connect to a network printer**

1. Make sure you have set up a printer driver on your computer for the network printer you want to connect to. For more information, see “Setting Up a Printer” in your Windows or Windows for Workgroups user’s guide.
2. On the toolbar, click the Connect Network Printer button. Or choose Connect Network Printer from the Printer menu.
3. If the port shown in the Device Name box is not the one associated with the appropriate printer driver, open the list, and then select the port name you want. Note that this list shows workgroup connections that already exist. If you select a port that is already connected to a network printer, you are prompted later to replace that connection. You can also type the port number (1 for LPT1, 2 for LPT2, and so on) in the Device Name box.
4. In the Path box, type the network printer’s path. Or, if you want to use a path that you’ve used recently, open the Path list, and then select a path.

If the Always Browse check box is selected, the Show Shared Printers On box appears each time you use the Connect Network Printer dialog box. If you clear the Always Browse check box, you can choose Browse to see the Show Shared Printers On box.

In the Show Shared Printers On box, you can expand (choose) a workgroup, select a computer listed below the workgroup name, and then select a network printer from the Shared Printers box.

5. Choose OK.

For help, choose the Help button or press F1 while using the dialog box.

You can also specify whether to automatically connect to the printer every time you start Windows for Workgroups. For more information about this and other features, choose the Help button or press F1 while using the Connect Network Printer dialog box.



► **To disconnect from a network printer**

1. On the toolbar, click the Disconnect Network Printer button. Or choose Disconnect Network Printer from the Printer menu.
2. In the list, double-click the name of the printer you want to disconnect. Or select it, and then choose OK.

You can extend the selection to include more than one printer.

Sharing Your Printer

You can share your printer with other people. This may be useful, for example, if yours is the only printer among a group of people.

Note If you chose Yes in the Do You Want To Share Printer Now dialog box when you set up Windows for Workgroups, your printer is already shared.

Before you can share a printer, you must set it up. For information, see “Setting Up a Printer” in your Windows or Windows for Workgroups user’s guide, or see Help for Print Manager.



▶ To share a printer or change information about your shared printer

1. In the Print Manager window, select the printer you want to share or modify.
2. On the toolbar, click the Share Printer As button. Or choose Share Printer As from the Printer menu.
3. In the Share Printer dialog box, type any share name or password you want in the appropriate box, and then choose OK.

For help, choose the Help button or press F1 while using the dialog box.

You can also specify a comment to appear next to the printer in the Connect Network Printer dialog box and specify whether to share the printer automatically each time you start Windows for Workgroups. For more information, choose the Help button or press F1 while using the Share Printer dialog box.

Note You can use the Net Watcher application to display the names of people using a shared printer. For more information, see Help for Net Watcher.



▶ To stop sharing a printer

1. On the toolbar, click the Stop Sharing Printer button. Or choose Stop Sharing Printer from the Printer menu.

If this button or command appears dimmed, no printers are shared.

2. In the Shared Printers box, double-click the name of the printer you want to stop sharing. Or select it, and then choose OK.

You can extend the selection to include more than one printer.

Choosing the Default Printer

Many Windows-based applications use the default printer when you choose the Print command.



► To choose a default printer

1. In the Print Manager window, select the printer you want documents sent to.
2. On the toolbar, click the Set Default Printer button. Or choose Set Default Printer from the Printer menu.

Pausing and Resuming Printing

You can pause the printing of another person's document on a printer you are sharing, or you can pause your entire printer. In the print queue for a network printer, you can pause only the printing of your own document—you cannot pause the printer or anyone else's document.

For more information about pausing and resuming printing, see your Windows or Windows for Workgroups user's guide, or see Help for Print Manager.

Canceling the Printing of a Document

You can cancel the printing of a document by deleting it from the list of documents waiting to print. When using a network printer, you can delete only your own document and only before it starts printing. When using your own (local) printer, whether shared or not, you can delete any document at any time.



► To cancel the printing of a document

1. In the Print Manager window, select the document you want to delete.
2. On the toolbar, click the Delete Document button. Or choose Delete Document from the Document menu. You can also use the DEL key.

A dialog box appears, prompting you to confirm the deletion.

► To cancel the printing of all documents on your printer, shared or not shared









- From the File menu, choose Exit to quit Print Manager. All documents in the queue will be deleted.

A dialog box appears, prompting you to confirm the deletion.

Note If you quit Print Manager while a document is printing in graphics mode, you might need to restart your printer or select the reset option on your printer.

Additional Print Manager Toolbar Buttons

In addition to using some toolbar buttons to manage shared printers, you can use the following buttons to control documents and printers.

Use this button	To
	Temporarily stop your printer from printing.
	Start your printer again if it has been paused.
	Specify the selected printer as the default printer for your Windows-based applications.
	Temporarily stop a document from printing.
	Start a document printing again if it has been paused.
	Remove any document from the print queue for your printer, or your document from a queue for a network printer.
	Move a selected document closer to the top of the print queue, making it print sooner.
	Move a selected document closer to the bottom of the print queue, making it print later.

More Ways to Use Print Manager

There are many other features that you can use to customize Print Manager to your needs and to perform various tasks. For more information, see your Windows or Windows for Workgroups user's guide, or see Help for Print Manager.

Journal of Management Studies, 39(6), 708–726.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific information required.

Journal of Interpersonal Violence 27(10)p. 1892-1906

Journal of Interpersonal Violence 26(10)

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Journal of Management Education 33(10):1135-1150

DOI: 10.1002/for

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to the distribution of the independent variables.

Source: *Journal of the American Statistical Association*, 1997, 92, 1037-1046.

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Research with children and young people

100% of the respondents of company A, 90% of company B, 80% of company C, and 70% of company D.

Journal of Management Education 30(6)p.789-804

1. *What is the purpose of this study?*

CHAPTER 4

Mail

This chapter describes how to use Mail to read messages from and send mail to other people who are using the Microsoft® Windows™ Network.

When you start Mail for the first time, you must do the following:

- Connect to or create a post office. If a Mail version 3.0 post office has been assigned for your workgroup, or someone in your workgroup has already created a workgroup post office (WGPO), you need to connect to it. See Appendix A, “Maintaining Mail,” if you are the person responsible for creating a post office, if you are creating a post office on a Microsoft LAN Manager or Novell® NetWare® network, or if you would like to set up your system to read mail from other message systems.
- Create an account in the post office, if no one has set up one for you.

If you have already connected to a post office and created an account, see “Signing In to Mail” later in this chapter.

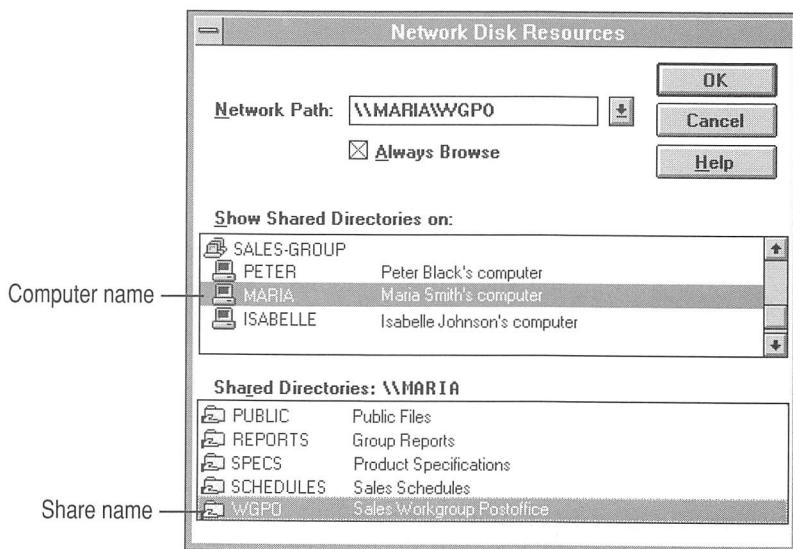
Connecting to a Post Office

Before connecting to a post office, ask the person who is managing Mail to give you the computer name and the name of the shared directory where the post office is located, and verify that your computer has enough available disk space. You also need to find out the password for the shared directory, if there is one.

The disk space that you need in order to use Mail depends on the number and type of messages you expect to store in Mail. A small number of messages requires about 100K of disk space; a large amount may require several megabytes.

► **To connect to a post office**

1. In the Network group, choose the Mail icon.
2. In the Welcome To Mail dialog box, select Connect To An Existing Postoffice, and then choose OK. The following dialog box appears.



3. Select the post office you want to connect to by doing one of the following:
In the Network Path box, type the path (`\\computername\sharename`) of the post office.
Or
In the Show Shared Directories On box, select the computer name for your post office. In the Shared Directories box, select the shared directory for your post office.
4. Choose OK.
If the shared directory requires a password, the Enter Shared Directory Password dialog box appears. Type the password, and then choose OK.
5. A dialog box appears. If you already have an account, choose Yes. You will then be prompted for your password. If you have not specified a password, your password was set to the default password that your administrator specified. By default, the workgroup password is PASSWORD.
If you need to create an account, choose No. The Enter Your Account Details dialog box appears.
6. Create your account as described in the following section.

For help, choose the Help button or press F1 while using the dialog boxes.

Creating Your Account

After you have connected to a post office, you need to create an account. Before doing so, check with the person maintaining Mail to find out whether an account has already been set up for you.

► To create your account

- In the Enter Your Account Details dialog box, fill in the appropriate information, and then choose OK.

Tip No distinction is made between uppercase and lowercase letters; for example, *MARIAS*, *MariaS*, and *marias* are considered to be the same. Choose a name that is easy to remember.

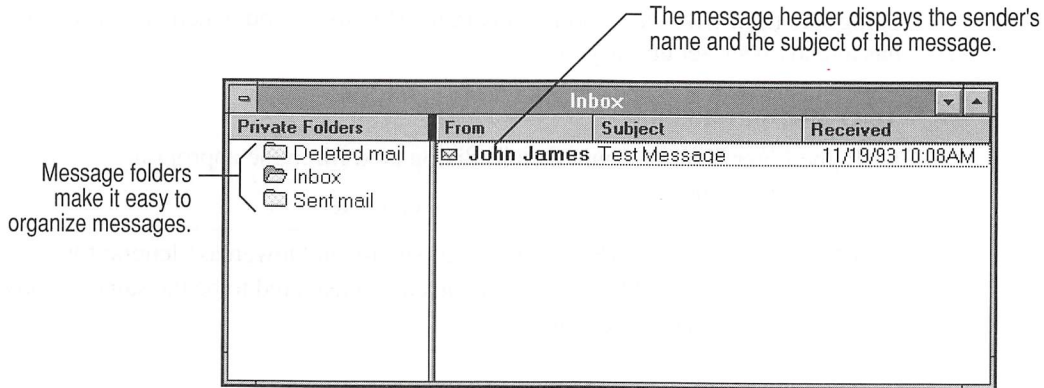
The following is required information you must specify.

Box	Description
Name	Type your full name. The maximum length is 30 characters, and the default is the name you used when setting up Windows for Workgroups.
Mailbox	Type a name that is easy to remember; for example, your first name and the first initial of your last name. You will use this name to sign in to Mail. The maximum length is 10 characters, and the default is your Windows logon name.
Password	Type a password that is easy to remember; you will use it and your mailbox name to sign in to Mail. The maximum length is 8 characters, and the default is PASSWORD.

The following is optional information you can specify.

Box	Description
Phone #1	Type your phone number. The maximum length is 32 characters.
Phone #2	Type your second phone or fax number. The maximum length is 32 characters.
Office	Type your office number. The maximum length is 32 characters.
Department	Type the name of your department. The maximum length is 32 characters.
Notes	Type any comments about your account. The maximum length is 128 characters.

After you have created an account, the Inbox appears, displaying your messages and folders.



Signing In to Mail

When you finish creating your account, you are automatically signed in to Mail. The next time you start Mail, you sign in by typing your password. You can choose to have your password automatically supplied when you start Mail.

► To sign in to Mail

1. In the Network group, choose the Mail icon. The Mail Sign In dialog box appears.
2. In the Password box, type your password.
3. If you want your password to be supplied automatically each time you start Mail, select the Remember Password check box.

Be aware that if you have selected the Remember Password check box, or if people know your password, they can read your mail. To protect your privacy, do not share your password with other people and do not select the Remember Password box.

4. Choose OK.

Changing Your Password

If security is a concern, change your password regularly. If you forget your password, see your Mail administrator.

► To change your password

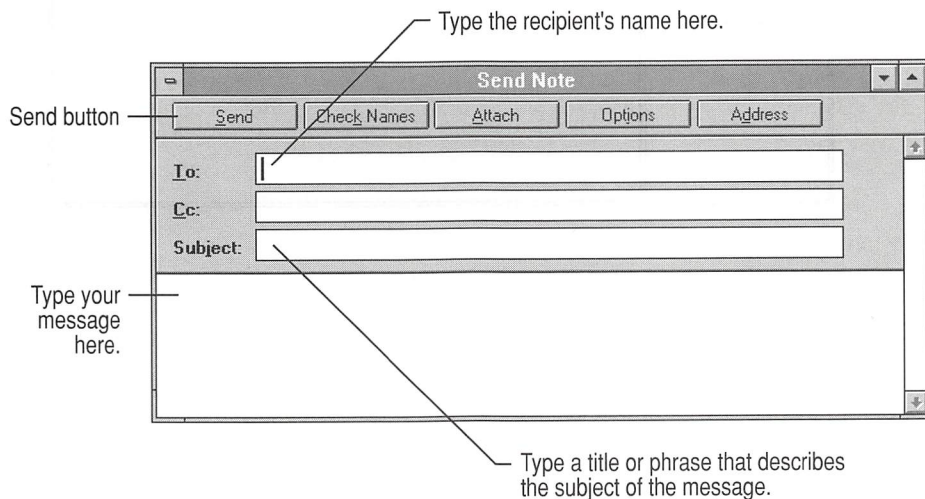
1. From the Mail menu in Mail, choose Change Password.
2. In the Old Password box, type your previous password, and then press TAB. For security reasons, you do not see the characters you type.
3. In the New Password box, type your new password, and then press TAB.
4. In the Verify New Password box, type the new password again.
5. Press ENTER. If your second attempt to type the new password does not match the first, the computer beeps; start over with a new password, and then verify it.

Sending a Message

Sending a message involves a few simple steps: addressing it, typing a subject line, typing the message, and sending it.

► To send a message

1. On the toolbar, click the Compose button. Or choose Compose Note from the Mail menu. The following window appears.



2. In the To box, type the names of the people you want to receive the mail. Use a semicolon (;) to separate names. If you want to send copies to other people, type their names in the Cc box.

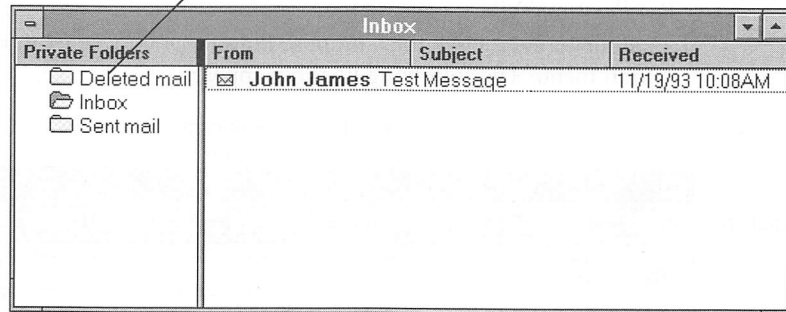
You can use the Personal Address Book in Mail to store names of people you send messages to. For more information, see Help for Mail.

3. Click the Subject box or press TAB, and then type a title or phrase that describes the message.
4. Click anywhere in the message area or press TAB, and then type your message. When your text reaches the right margin, the next word moves to the next line; you don't need to press ENTER at the end of each line.
5. To send the message, choose Send.

Reading a Message

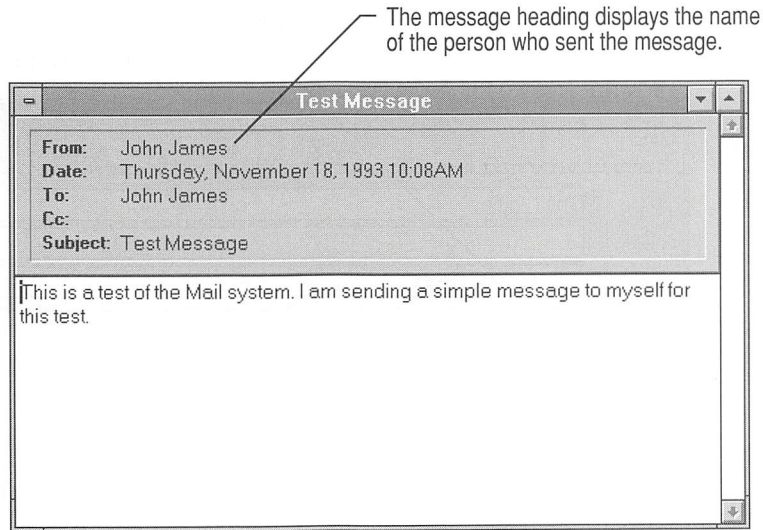
Your Inbox displays information about each message, including the name of the sender and the date and time the message was received.

When you have an unread or new message, Mail displays a closed-envelope symbol and displays the sender's name in bold type.



► **To read the message**

- Double-click the message. Or use the arrow keys to select the message, and then press ENTER.

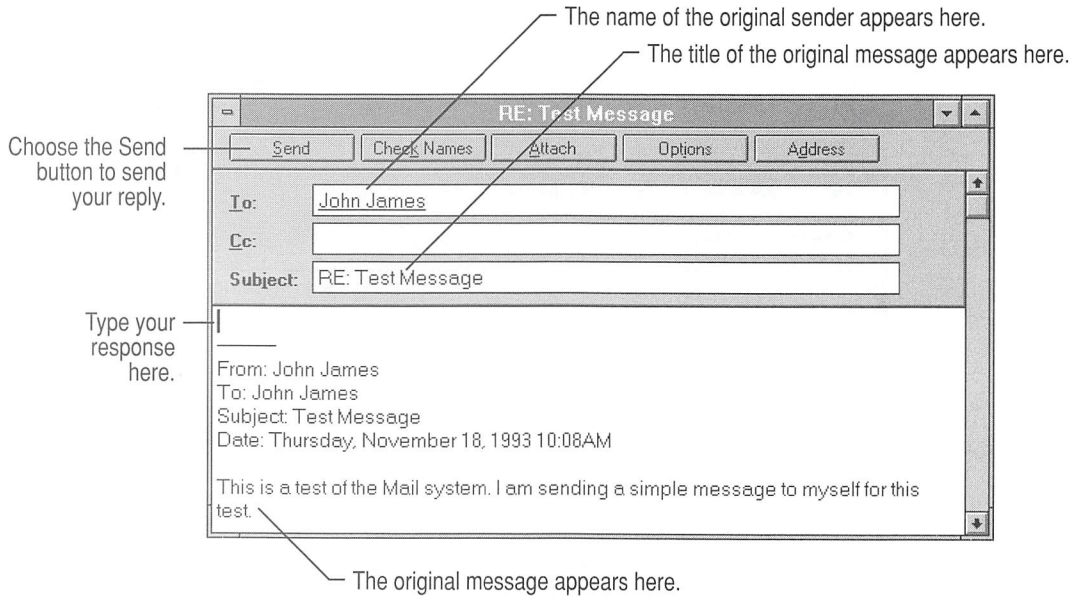


Replying to a Message

When you send a reply, your message is addressed for you. Your response includes the original message, and you can add comments to it, if needed. If you choose the Reply All button or command, the message is addressed to everyone in the To and Cc boxes.

► **To reply to a message**

- On the toolbar, click the Reply button. Or choose Reply from the Mail menu. The following window appears.



Deleting a Message

To keep your mailbox from becoming cluttered, you can delete messages you no longer need.

► **To delete a message**

1. Select the message that you want to delete.
2. On the toolbar, click the Delete button. Or choose Delete from the File menu.

The message moves to the Deleted Mail folder. By default, the Deleted Mail folder is emptied each time you quit Mail. You can change this option by using the Options command on the Mail menu. You can retrieve the message from the Deleted Mail folder at any time until you quit Mail.

Quitting Mail

There are two commands you can use to quit Mail.

- Use the Exit command to quit Mail without signing out.

This command is useful if you are running an application, such as Microsoft At Work™ PC Fax or Schedule+, that uses Mail to communicate with other people. The other application continues to run, even though you have quit Mail.

If you use this command and you leave your computer unattended, another person can start Mail and read your messages without being prompted for a password.

- Use the Exit And Sign Out command to quit Mail and sign out.

If you use this command, any other application (such as PC Fax or Schedule+) that uses Mail to communicate with other people also stops running. If you restart Mail, you need to sign in.

By default, all messages in the Deleted Mail folder are deleted when you quit Mail. You can change this option by using the Options command on the Mail menu.

► **To quit Mail and remain signed in**

- From the File menu, choose Exit.

► **To quit Mail and sign out**

- From the File menu, choose Exit And Sign Out.

The Message File

After you connect to your post office and sign in, an MSMAIL.MMF file is created in the directory where you set up Windows for Workgroups. This file is called your *message file*. It stores your messages, message folders, and Personal Address Book. The file is updated when you receive messages. If your message file becomes corrupted, you are given the option to fix it.

Additional Features of Mail

There are many other features you can use in Mail. For information about the following tasks, see Help for Mail:

- Using folders to organize your messages
- Finding a specific message
- Using the Address Book
- Creating and using a message template
- Embedding an object in a message
- Sorting messages

C H A P T E R 5

Microsoft At Work PC Fax

Using Microsoft® At Work™ PC Fax version 1.0, you can send faxes to and receive faxes from standard fax machines and computers equipped with fax modems. Using PC Fax is like using electronic mail. The only difference between a mail message and fax message is the way you address it. A fax consists of a typed message and can also include a cover sheet and attached documents, such as Microsoft Excel spreadsheets.

This chapter describes how to:

- Set up PC Fax for use with a fax modem attached to your computer or with a shared fax modem on the network.
- Share your fax modem with other people.
- Send and receive faxes and attach documents.
- Use the security features to send and receive secured faxes.
- Use PC Fax when you're traveling.

Setting Up PC Fax

This section describes how to set up your computer to use either a fax modem on your computer or a fax modem connected to another computer on the network. It also describes how to select which fax modem to use, if there is more than one fax modem available.

Before starting to use PC Fax, make sure you:

- Have enough disk space. You need approximately 80K of disk space for each fax page.
- Disable any fax software other than PC Fax. You can use only one fax application with a modem at a time.

Using a Fax Modem Attached to Your Computer

You can attach a fax modem to your computer and set it up either for yourself or for other people on your network as well.

The modem must be a Class 1, Class 2, or Communication Application Specification (CAS) modem. For information, check your fax-modem documentation.

You need to take the following steps in order to use a fax modem attached to your computer:

1. Set up the hardware for the fax modem.
2. If you have a CAS modem, set up the driver (software) for the fax modem.
3. Configure the fax modem.
4. If you plan to share your fax modem with other people using the network, specify that you're sharing your fax modem. For information about sharing, see "Sharing Your Fax Modem" later in this chapter.

Setting Up Hardware for Your Fax Modem

To install the hardware on a serial port (COM1, COM2, COM3, or COM4) on your computer, refer to your fax-modem documentation.

Note Although you can use your telephone line with your fax modem, a separate line for your fax modem is recommended so that fax transmissions won't be interrupted accidentally. If you use the telephone line, it must be in analog format.

Setting Up Software for Your Fax Modem

Do not set up the fax driver (software) that accompanies a Class 1 or Class 2 fax modem; you will be using PC Fax instead. If you install a CAS modem, however, you must set up the fax driver supplied with it. For instructions, see your CAS modem documentation.

Configuring the Fax Modem

The configuration settings determine how your fax modem handles faxes. You can change these settings at any time.

► **To configure your fax modem**

1. In the Control Panel window, choose the Fax icon.
2. If you have set up Mail and connected to a post office, the Fax Modems dialog box appears.

Otherwise, the Microsoft At Work Fax dialog box appears. Select Email And Fax if you plan to use Mail to send mail messages to other people on your network. Select Fax Only if you won't be using Mail to communicate with others via mail messages. You will still use Mail to read and send faxes. Choose OK.

If you select Fax Only, you will be prompted to set up Mail when you finish configuring your fax modem.

3. In the Fax Modems dialog box, choose Add. The Add Fax Modems dialog box appears.
4. In the Type list, select the type of fax modem you want to add, and then choose OK.
5. In the Fax Phone Number dialog box, type your fax number (including country and area code), and then choose OK.
6. In the Fax Modems dialog box, choose Setup. A dialog box appears for the fax modem you are setting up.

Under Answer Mode, you can select options to specify how your fax modem answers incoming calls.

Choose Speaker to specify speaker mode and volume.

Choose Dialing to specify dialing prefixes required for outgoing calls from your phone line and other dialing options.

7. Choose OK.

For help with the dialog boxes, choose the Help button or press F1 while using the dialog boxes.

After you set up the fax modem, you need to specify it as the active modem. For more information, see "Specifying the Active Fax Modem" later in this chapter.

Using a Fax Modem on the Network

If you plan to use a fax modem located on another computer on your network, you need to specify the name of the computer and the name of the shared directory. You may also need to supply a password for the shared directory. Your workgroup administrator or the person whose fax modem it is can give you this information.

► To set up your computer to use a shared fax modem

1. In the Control panel window, choose the Fax icon.
2. In the Fax Modems dialog box, choose Add.
3. In the Type box, select Shared Network Fax, and then choose OK. The Connect Network Fax dialog box appears.

4. If the Connections list includes the path for the shared fax modem, go to step 6.
If the Connections list does not include the path for the shared fax modem, choose Network. The Connect Network Drive dialog box appears.

5. In the Path box, type the computer name and the name of the shared directory, and then choose OK. The Connect Network Fax dialog box appears.

For information about using the Connect Network Drive dialog box to find the shared directory or how to reconnect to the directory each time you start Windows for Workgroups, choose the Help button or press F1 while using the dialog box.

6. In the Connections list, select the path for the shared fax modem, and then choose OK.

After you set up the fax modem, use the following procedure to specify it as the active modem.

Specifying the Active Fax Modem

Before you can use a fax modem you have just set up, you must specify it as active. Also, only one fax modem can be used at a time. If you have more than one available, you need to specify which one you want to be active. Make sure that Mail is closed and the Outbox is empty before you specify the active modem.

► To select a fax modem

1. In the Control Panel window, choose the Fax icon.
2. In the Fax Modems dialog box, select the modem you would like to use.
3. Choose Set As Active Modem, and then choose OK.

You must restart Mail after specifying the active fax modem.

Sharing Your Fax Modem

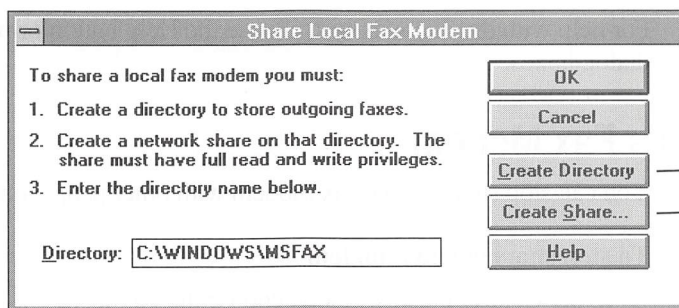
When you share a fax modem, anyone using the network can connect to it to send faxes. Because of this, you might receive faxes for other people in addition to faxes intended for you. You need to forward faxes intended for others. For information about forwarding faxes, see "Forwarding a Fax" later in this chapter.

► **To share a fax modem with other people on the network**

1. In the Control Panel window, choose the Fax icon.
2. In the Fax Modems dialog box, select the modem you want to share, and then choose Share.

This button appears only if file sharing is set up on your computer. To set up file sharing, see “Setting Up Sharing for Files and Printers” in Chapter 3, “New File Manager and Print Manager Features.”

3. The Share Local Fax Modem dialog box displays a directory name in the Directory box. If you want a different directory, type the path and name of the directory that you want to use for the fax modem.



Choose this button if the directory does not already exist.

Choose this button if the directory is not already shared.

Or

If you have not already created the directory, choose Create Directory, and then choose OK.

4. If you have not already shared the directory, see the following procedure. Otherwise, in the Fax Modems dialog box, choose OK.

► **To create a shared directory**

1. In the Share Local Fax Modem dialog box, choose Create Share.
2. The name of the shared directory is displayed in the Share Name box. If you want to share a different directory, type the name.
3. The path of the shared directory appears in the Path box. If you want to share a different directory, type the path.
4. Under Comment, you can type an optional description of the shared directory.
5. If you want the modem to be shared automatically when you restart Windows, select the Re-Share At Startup check box.

6. Under Access Type, select Full or Depends On Password.

If you select Depends On Password, type the password in the Full Access Password box.

Note If you select Read-Only, other people will not be able to connect to your modem.

7. Choose OK.
8. In the Share Local Fax Modem dialog box, choose OK.
9. In the Fax Modems dialog box, choose OK.

For help with the dialog boxes, choose the Help button or press F1 while using the dialog boxes.

Stop Sharing a Fax Modem

You can stop sharing your fax modem with other people on the network.

► To stop sharing a fax modem

1. In the Control Panel window, choose the Fax icon.
2. In the Fax Modems dialog box, select the shared modem, and then choose Stop Sharing.
3. Choose OK.

Sending a Fax

You can send a fax from Mail or from an application. When you send a fax from Mail, your fax can include other documents that you *attach*. When you send a fax from an application, the current document becomes the fax message.

You can send the same message to both Mail and PC Fax recipients at the same time by using a combination of mail and fax addresses.

If you send many faxes to the same recipients, you can avoid having to type the fax number each time by adding fax numbers to your Personal Address Book in Mail.

The following two procedures describe the basic steps for sending a fax. If you are not familiar with using Mail, see Chapter 4, "Mail."

► To send a fax from Mail

1. In the Network group, choose the Mail icon.
2. On the toolbar, click the Compose button.

3. In the To box of the Send Note window, type [**fax:name@number**] or [**fax:number**]. For example: [fax:Chris Doe@555-1234] or [fax:555-1234].
4. In the Subject box, type the subject of the fax.
5. In the message area, type the message.
6. If you want to attach a document, click the Attach button on the toolbar.
In the Attach dialog box, locate and select the document, and then choose Attach.
Choose Close.
7. On the toolbar, click the Send button.

You can also send a fax that includes a document from within the application used to create the document.

You still must have Mail running when you send a fax from an application.

Caution When you send a fax or mail message from some applications, the text in the attached document may lose its formatting. Before using this method, you might want to test the application by sending a mail message to yourself.

► **To send a fax from within an application**

1. Make sure that Mail is running.
2. Open the document you want to send.
3. If there is a Send command on the File menu, choose it.
If there is no Send command on the File menu, specify your fax modem as your printer. Then choose Print from the File menu, and choose OK in the Print dialog box.
4. In the To box of the Send Note window, type [**fax:name@number**] or [**fax:number**]. For example: [fax:Chris Doe@555-1234] or [fax:555-1234].
5. You can change the Subject line or add text to the message.
6. On the toolbar, click the Send button.

For more information about specifying a printer, see the documentation for your application.

Tip If you use TrueType fonts, your printed fax will resemble the screen image, including page breaks.

Adding Fax Numbers to the Personal Address Book

You can use the Personal Address Book in Mail to store commonly used fax numbers in addition to commonly used mail addresses. For information about the Personal Address Book, see Help for PC Fax and for Mail.

For information about using the Personal Address Book to send faxes when you are traveling, see “Tips for Travelers” later in this chapter.

Note You do not need to include the recipient's name when you type a fax address. However, if you have selected the option in Mail to add recipients automatically to the Personal Address Book, and you use a name in the fax address, the address is added by name rather than by fax number.

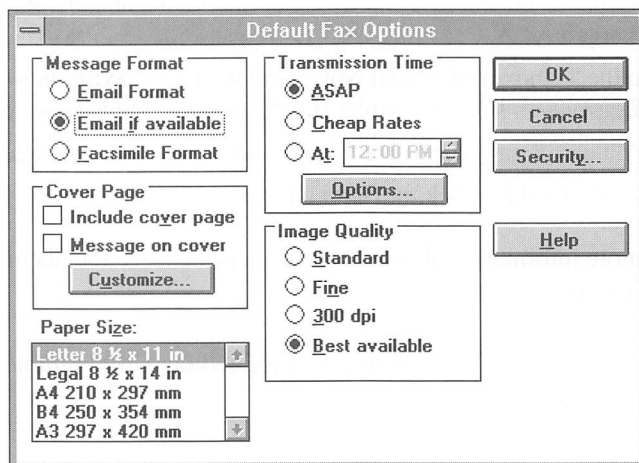
Setting Fax Options

You can customize your faxes by setting options that apply to all of your faxes (*global*). You can also set options for each fax message you send, temporarily overriding the global settings.

► **To set global fax options**

1. In the Network group, choose the Mail icon.
2. From the Fax menu, choose Options.
3. In the Default Fax Options dialog box, set the options you want for sending faxes, and then choose OK.

For help, choose the Help button or press F1 while using the dialog box.



Setting Options for an Individual Fax

You can set options for the current fax message, temporarily overriding the global settings. If you want, you can save them as the global settings.

► To set options for an individual fax

1. In the Network group, choose the Mail icon.
2. On the toolbar, click the Compose button.
3. On the toolbar, click the Options button.
4. In the Options dialog box, choose Fax.
5. In the Fax Message Options dialog box, set the options you want for the current fax.

If you want to save the new settings for all future faxes, select the Save As Defaults check box.

6. Choose OK.
7. In the Options dialog box, choose OK.
8. Send the fax as usual.

For help with the dialog boxes, choose the Help button or press F1 while using the dialog boxes.

Managing Outgoing Faxes

Whether you're using a fax modem installed on your computer or a fax modem on the network, you can view the *queue*, or list of faxes waiting to be sent. If the fax modem is installed on your computer, you can reschedule fax send times or delete any faxes in the queue. If you're using a fax modem on the network, you can only reschedule or delete faxes that you have sent.

► To delete or reschedule an outgoing fax

1. In the Network group, choose the Mail icon.
2. From the Fax menu, choose Queue.
3. Select the fax you want to delete or reschedule.
4. To delete the fax, choose Cancel Send.

To reschedule the fax, choose Reschedule. In the New Time dialog box, select the new send time, and then choose OK.

Receiving a Fax

You can receive a fax directly via a fax modem on your computer, or another person who has a fax modem on their computer can use Mail to forward a fax to you. In either case, incoming faxes appear exactly like incoming mail messages in your Mail Inbox. You can view a fax on your screen, print it, save it on your hard disk, reply to it, or forward it. For more information about using Mail, see Chapter 4, "Mail."

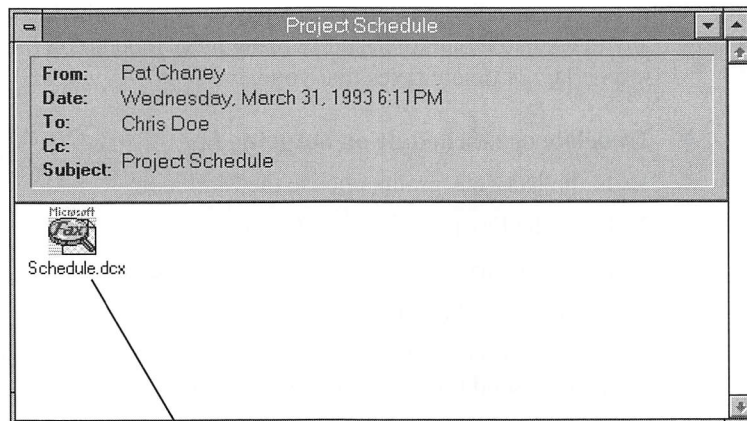
Note If you have a fax modem on your computer, in order to receive a fax, you must either have Mail running on your computer or have quit Mail without signing out. See "Quitting Mail" in Chapter 4, "Mail," for information about quitting mail without signing out.

If you are using a phone line for both voice and fax, you can use the Answer Now! command on the Fax menu in Mail to switch the phone line to receive a fax.

The fax you receive may be a secured fax that requires a password or key. For more information about receiving a secured fax, see "Using Security" later in this chapter.

► **To read a fax**

1. In the Network group, choose the Mail icon.
2. Double-click the fax message you want to read.
3. If the message has an attached document, double-click the icon to read the document.



Icon for an attached document

When you open an attached document, the application that was used to create the document starts up automatically, if the application is on your hard disk. For example, if the fax contains an attached spreadsheet created with Microsoft Excel, when you double-click the attachment, Microsoft Excel starts and opens the spreadsheet. The attached document has a filename extension that indicates its original application. In this example, the spreadsheet has an .XLS extension.

An attachment that has a .DCX extension is in *facsimile format*. This is a standard format used for sending faxes when the recipient may not have the application the sender used; each page of the fax is stored as an image. When you double-click an attachment that has a .DCX extension, the FaxViewer window opens, displaying the contents of the fax.

The FaxViewer window can be used to:

- Scale or rotate a fax for viewing.
- Enhance or reverse the fax image for viewing and printing, if the resolution of your printer is lower than the resolution of the received image.
- Print a fax.
- Save a fax.
- Export a single page as a .PCX file.

For more information about FaxViewer, see Help for PC Fax. For more information about reading documents in other formats, see “Associating Files with Applications” in Help for File Manager.

Forwarding a Fax

If you have a shared fax modem on your computer, you need to forward any faxes you receive that are intended for other people. To forward a fax, you first need to open it so you can identify the recipient.

► To forward a fax

1. In the Mail window, double-click the fax message.

If the fax was sent from Mail or from an application, the To box displays the name of the intended recipient. If the fax was sent from a standard fax machine, you must double-click the attached fax icon in order to view the cover page and find the intended recipient's name.

2. On the toolbar, choose the Forward button.
3. In the To box, type the name of the intended recipient.
4. On the toolbar, choose the Send button.

Using Security

With PC Fax, you can ensure the security of the faxes you send by *encrypting* them. An encrypted fax cannot be read by anyone except the intended recipient. Encrypting “locks” a fax. The recipient must *decrypt* the fax to “unlock” it. There are two ways to encrypt a fax: *password encryption* and *key encryption*. You can also send a fax with a *digital signature*, which assures all recipients that only you could have sent it.

To send or view a fax using key encryption or a digital signature, you must use *advanced security*. Advanced security uses two keys: a *public key* you give to fax recipients, and a *private key*, which only you use.

Password encryption is less secure than key encryption, but it is sufficient for many situations. Password encryption is the easiest to set up, since it does not require establishing advanced security. Also, you choose the password (and it is short), so it is easy to give to another person over the phone.

With advanced security, a key contains 154 computer-generated characters and is usually exchanged between sender and recipient on a floppy disk. For more information, see “Sending and Receiving Key-Secured Faxes” later in this chapter.

Both sender and recipient must be using PC Fax to use any of these security options.

Sending or Receiving a Password-Secured Fax

You must select the Password option for each password-encrypted fax you send.

► To send a password-encrypted fax

1. In the Network group, choose the Mail icon.
2. On the toolbar, click the Compose button.
3. On the toolbar, click the Options button.
4. In the Options dialog box, choose Fax.
5. In the Fax Message Options dialog box, choose Security.
6. Select Password.
7. In the Type Password box, type the password, and then type it again in the Verify box.
8. Choose OK.
9. In the Fax Message Options dialog box, choose OK.
10. In the Options dialog box, choose OK.
11. Send the fax as usual.
12. Tell the recipient the password.

For help with the dialog boxes, choose the Help button or press F1 while using the dialog boxes.

► **To read a password-encrypted fax**

1. In the Network group, choose the Mail icon.
2. Double-click the fax message you want to read.
3. In the Password box, type the password.
4. Choose OK.
5. A readable copy of the fax appears as a new message in your Inbox.

Establishing and Maintaining Advanced Security

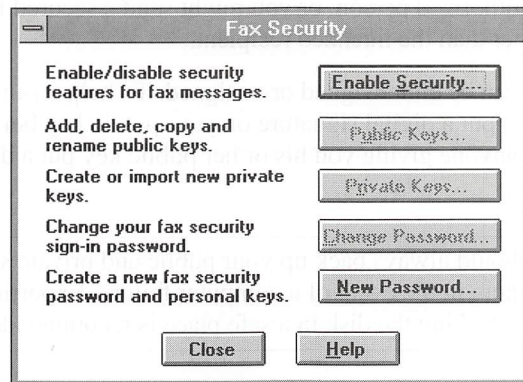
To send or view a fax by using key encryption or a digital signature, you must establish advanced security to set up your public and private keys. After you have your keys set up, you must either start advanced security each time you send or view a fax, or set up your options so that advanced security is always on.

Note A digital signature may be legally binding. If your computer is not in a secure environment, you may want to turn off security or quit Mail if you leave your computer unattended.

► **To establish and start security**

1. In the Network group, choose the Mail icon.
2. From the Fax menu, choose Advanced Security.
3. In the Fax Security dialog box, choose Enable Security.

The Enable Security button changes to Disable Security.



4. The first time you use advanced security, a message appears, prompting you to establish an account. Choose Yes. In the Password box, type and verify the password, and then choose OK.

If you've already established advanced security, the Password dialog box appears. Type and verify your password, and then choose OK.

5. In the Fax Security dialog box, choose Close.

Tip If you leave security on when quitting Mail, the next time you start Mail you will be prompted for your fax security password to start advanced security.

► **To quit security**

1. In the Network group, choose the Mail icon.
2. From the Fax menu, choose Advanced Security.
3. In the Fax Security dialog box, choose Disable Security.
4. Choose Close.

Managing Security Keys

To send and receive key-secured or digitally signed faxes, you must exchange public keys with your correspondents. You and your correspondents must all be using PC Fax and must have established advanced security.

The easiest way to exchange public keys is to *export* them to a floppy disk and then exchange disks with your correspondents. You can then *import* other people's public keys from the disks.

You should accept public keys only directly from the sender or from a third party you know and trust. Otherwise, you could receive a fax with a digital signature from an unauthorized person, or you might send a secured fax that can be read by someone other than the intended recipient.

Public keys can be either signed or unsigned. To help ensure integrity of public keys, you can put a digital signature on your public key before you export it, and request that anyone giving you his or her public key put a digital signature on the key.

Note You should always back up your public and private security keys so that you can restore them in the event of a computer failure. Exporting the keys to a floppy disk and then locking the disk in a safe place is recommended.

► **To export your public key**

1. Insert a disk in a disk drive.
2. In the Network group, choose the Mail icon.
3. From the Fax menu, choose Advanced Security.
4. In the Fax Security dialog box, choose Enable Security.
5. Type your password; and then choose OK.
6. In the Fax Security dialog box, choose Public Keys.
7. In the Public Keys dialog box, select your fax account, and then choose Export.
8. In the File Name box, type a name for the public-key file. The filename extension is .AWP for an unsigned key and .AWS for a signed key.
9. In the Drives list, select the floppy disk drive.
10. Choose OK.
11. In the Public Keys dialog box, choose Close.
12. In the Fax Security dialog box, choose Close.

For help with the dialog boxes, choose the Help button or press F1 while using the dialog boxes.

► **To import a public key**

1. Insert the disk containing the public key into a disk drive.
2. In the Fax Security dialog box, choose Enable Security, if security is not already on.
3. Choose Public Keys.
4. In the Public Keys dialog box, choose Import.
5. In the Drives list, select the floppy disk drive.
6. In the list, select the .AWP or .AWS file containing your public key. Or type the filename in the File Name box.
7. Choose OK.
8. In the Public Keys dialog box, choose Close.
9. In the Fax Security dialog box, choose Close.

For help with the dialog boxes, choose the Help button or press F1 while using the dialog boxes.

► **To back up or restore your private key**

- Follow the procedures for exporting and importing public keys, but instead of the Public Keys button, choose the Private Keys button in the Fax Security dialog box. The filename extension for a private key is .AWR.

Store your private-key backup in a secure location.

Important When you import a private key, you are prompted for the password that was in effect at the time you exported the key for backup. If you plan to change your password, make a note of the old password and store it with the key backup.

Sending and Receiving Key-Secured Faxes

When advanced security is on, you can send a key-encrypted or digitally signed fax. You can also read a secured fax that you have received. You can set the key-encrypt and sign options as global fax options, but they are effective only when advanced security is on.

With key encryption, the sender of a fax uses the recipient's public key to encrypt the fax. When the recipient receives the fax, he or she uses the private key to decrypt the message.

Digital signature works in reverse. The sender uses his or her private key to "sign" the fax. Anyone can read it. But only recipients having the sender's public key can verify the sender's identity.

You can also send a fax that is both digitally signed and encrypted.

► **To send a key-encrypted or digitally signed fax**

1. In the Network group, choose the Mail icon.
2. From the Fax menu, choose Advanced Security.
3. In the Fax Security dialog box, choose Enable Security.
4. Type your password, and then choose OK.
5. In the Fax Security dialog box, choose Close.
6. From the Fax menu, choose Options.
7. In the Default Fax Options dialog box, choose Security.
8. In the Fax Message Security Options dialog box, select the option(s) you want.

9. Choose OK.
10. In the Default Fax Options dialog box, choose OK.
11. Send the fax.

For help with the dialog boxes, choose the Help button or press F1 while using the dialog boxes.

► **To read a key-encrypted fax**

1. In the Network group, choose the Mail icon.
2. From the Fax menu, choose Advanced Security.
3. In the Fax Security dialog box, choose Enable Security.
4. Type your password, and then choose OK.
5. In the Fax Security dialog box, choose Close.
6. Double-click the secured fax you want to read. If it is an encrypted fax, a readable copy will appear as a new message in your Inbox.

If it is a digitally signed fax, the signature will be verified. Choose Launch to read the fax.

Tips for Travelers

If you plan to take your fax modem and computer to other locations, and you use the Personal Address Book in Mail, you need to use the international format when addressing the fax.

The international format is:

+countrycode-areacode-phonenumbers

Be sure to include the plus sign and the hyphens.

- To have PC Fax dial your long-distance credit-card number for you, specify the number in the Long Distance Calls and International Calls boxes in the Modem Dialing Options dialog box when you set up your fax modem.
- When you go to another country, you can use Control Panel to change your fax number, and numbers from your Personal Address Book will be used.

For example, if you send a fax to a local recipient by using a Personal Address Book entry that has an international-format number, PC Fax determines that the country code and area code aren't required, so it doesn't dial them. If you go to another country and send a fax to the same recipient, PC Fax determines that it now needs to dial the access code for an international line, the country code, the area code, and then the number.

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CHAPTER 6

ClipBook Viewer

ClipBook Viewer provides temporary or long-term storage for information you want to move, save, or share. It includes:

- **Clipboard**—A temporary storage location for information you cut or copy. Information on the Clipboard remains there until you cut or copy another piece of information onto it or until you quit Microsoft® Windows™ for Workgroups.
- **Local ClipBook**—A long-term storage location for information you want to save, share, or move. Each piece of information you paste onto your Local ClipBook is called a *page*. The Local ClipBook is like a personal notebook: It stores multiple pages of information. You copy a page of information back onto your Clipboard when you want to use it in another application. Unlike the Clipboard, the Local ClipBook stores the information even when you quit Windows for Workgroups.
- **ClipBook Viewer**—An application that enables you to view information on the Clipboard, the Local ClipBook, and ClipBooks on other computers.

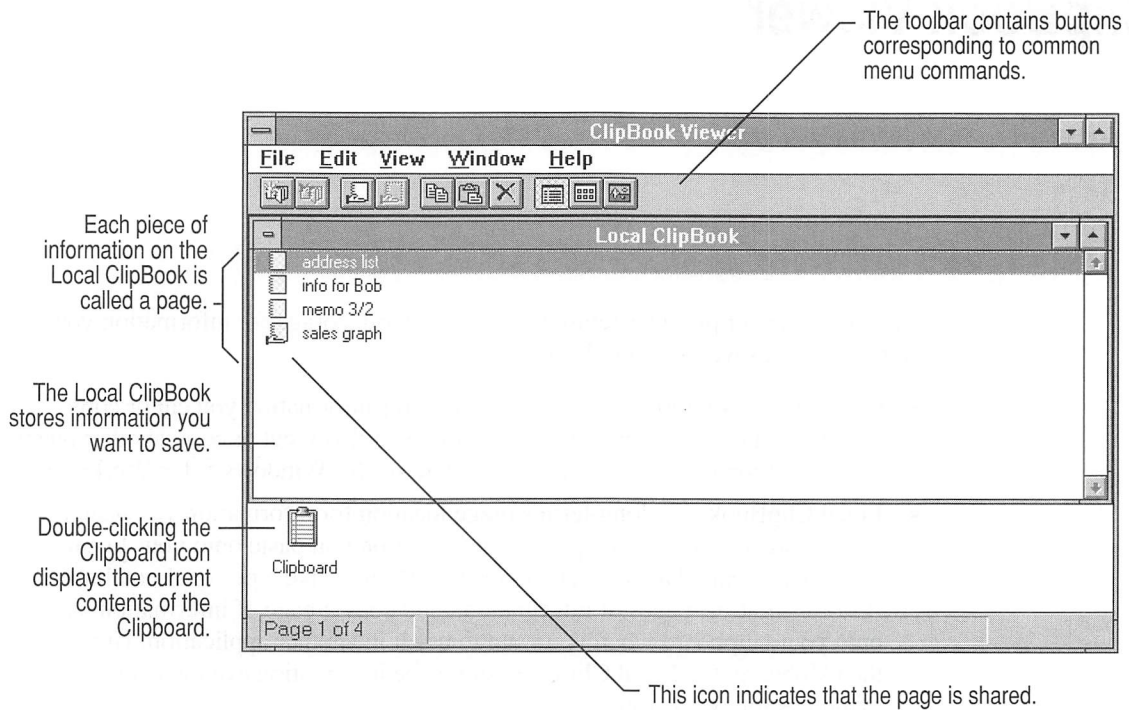
When you use the Microsoft Windows Network, you can use your Local ClipBook to share information, such as a drawing, a chart, or a section of text, with other people on the network. You can also create *links* in your documents to information that is already being shared by other people on their ClipBooks, ensuring that your documents are updated whenever the information changes.

For basic information about using the Clipboard, see your Windows or Windows for Workgroups documentation.

Using the ClipBook Viewer Window

ClipBook Viewer has two windows—the Clipboard window, which displays the current contents of the Clipboard; and the Local ClipBook window, which displays the contents of your Local ClipBook.

When you choose the ClipBook Viewer icon in the Main group, the following window appears.













► **To view the contents of the Clipboard or Local ClipBook**

1. In the Main group, choose the ClipBook Viewer icon.
2. From the Window menu, choose Clipboard or Local ClipBook.

You can also select the window or choose the icon you want.

The ClipBook Viewer toolbar contains the following buttons, which are shortcuts for menu commands.

Use this button	Or this command	To
	Connect	Connect to a ClipBook on another computer.
	Disconnect	Disconnect from a ClipBook on another computer.
	Share	Share a Local ClipBook page.
	Stop Sharing	Stop sharing a Local ClipBook page.

Use this button	Or this command	To
	Copy	Copy the selected ClipBook page onto the Clipboard.
	Paste	Paste the contents of the Clipboard onto the Local ClipBook.
	Delete	Delete the contents of the Clipboard or the selected Local ClipBook page.
	Table Of Contents	Display the titles of the pages saved on a ClipBook.
	Thumbnails	Display small pictures (thumbnails) of each page on a ClipBook.
	Full Page	Display the contents of the selected page on a ClipBook.

Note Sometimes the line length of the information you copy or cut changes so that all of it is visible in the Local ClipBook window. When you paste the information from the Clipboard into an application, the formatting is intact.

The Clipboard accepts several text and graphics formats. To view the available formats, use the View menu in ClipBook Viewer.

Saving the Contents of the Clipboard

There are two ways to save the contents of the Clipboard—you can save it as a page on the Local ClipBook or save it to a file (with a .CLP extension). The advantages of saving to the Local ClipBook are that the information is easier to retrieve, and you can share the information on the Local ClipBook with others. You might want to save the contents of the Clipboard to a file if you need to share information with someone whose computer can read information only in the Clipboard file format. For more information about saving to a file, see Help for ClipBook Viewer.

► To save the contents of the Clipboard to the Local ClipBook

1. In the Main group, choose the ClipBook Viewer icon.
2. From the Window menu, choose Local ClipBook. Or click the window to select it.
3. On the toolbar, click the Paste button. Or choose Paste from the Edit menu.
4. In the Page Name box, type a name for the page you are saving the information to.
5. Choose OK. A new page appears in the Local ClipBook window.

Before you can insert a Local ClipBook page into another document, you must copy the page back onto the Clipboard (unless the information is still on the Clipboard).

► **To copy a page from the Local ClipBook back onto the Clipboard**

1. In the Main group, choose the ClipBook Viewer icon.
2. From the Window menu, choose Local ClipBook. Or click the window to select it.
3. Select the page you want to copy.
4. On the toolbar, click the Copy button. Or choose Copy from the Edit menu. The contents of the page are displayed in the Clipboard window.

Sharing Information with Other People

You can share pages from your Local ClipBook with other people, or use pages they have shared.

Sharing Local ClipBook Pages

When information is on the Clipboard, you can save it as a page on the Local ClipBook and then share it with other people. Others can then connect to your Local ClipBook and view or change the information you have shared, depending on the type of access you have specified.

When a Local ClipBook page is shared, there is an icon next to the page title indicating that the page is shared.



► **To share a page on the Local ClipBook**

1. In the Local ClipBook window, select the page you want to share.
2. On the toolbar, click the Share button. Or choose Share from the File menu.

Select any of the following options in the Share ClipBook Page dialog box, and then choose OK.

Select	To
Start Application On Connect	Automatically start the application that was used to create the information in the shared page. If this option is not selected, other people cannot use the information unless the application used to create the information is already running.

Select	To
Access Type	Assign the type of access others can have to this information. Note that full access is available only with some applications: With most applications, other people cannot modify shared ClipBook pages.
Passwords	Assign a password, if you specified read-only or full access.



► To stop sharing a page on the Local ClipBook

1. In the Local ClipBook window, select the page you want to stop sharing.
2. On the toolbar, click the Stop Sharing button. Or choose Stop Sharing from the File menu.

Connecting to a ClipBook on Another Computer

You might want to connect to a ClipBook on another computer in order to work on a document with someone else, view information, or embed or link objects from the other computer. For information about using ClipBook Viewer to embed or link objects, see the next section in this chapter.



► To connect to a ClipBook on another computer

1. In the Main group, choose the ClipBook Viewer icon.
2. On the toolbar, click the Connect button. Or choose Connect from the File menu.
3. In the Select Computer dialog box, type the name of the computer that has the ClipBook you want to connect to, or click the arrow to the right of the Computer Name box to select from a list of previous connections.

The Computers box lists the available computers by workgroup name. Expand (choose) a workgroup name to display a list of computers in the workgroup, and then select the name of the computer that has the ClipBook you want to connect to.

If, typically, you know the name of the computer you want to connect to, you may want to clear the Always Browse check box.

4. Choose OK. The contents of the ClipBook you connected to are displayed in a window.

You can disconnect from a ClipBook on another computer when you are done using it.



► **To disconnect from a ClipBook on another computer**

1. In the Main group, choose the ClipBook Viewer icon.
2. Select the ClipBook window or icon that you want to disconnect from.
3. On the toolbar, click the Disconnect button. Or choose Disconnect from the File menu.

Embedding or Linking an Object from Another Computer

Object linking and embedding (OLE), transferring and sharing information between Windows-based applications, has been enhanced for Windows for Workgroups version 3.11. For basic information about linking and embedding objects, see your Windows or Windows for Workgroups user's guide.

Using the Microsoft Windows Network, you can link or embed an object from a document on another computer into a document on your computer. The object must already be pasted as a page on the other computer's ClipBook, and it must be designated as shared.

Note When you link an object from another computer by using the ClipBook, you cannot change the linked object by using your computer. However, changes made to the original document do appear in your document.

► **To embed or link an object from another computer**

1. Follow the steps for connecting to a ClipBook on another computer, described in the previous section.
2. Select the shared ClipBook page that you want to embed or link into your document.
3. From the Edit menu, choose Copy. A copy of the object is placed onto your Clipboard.
4. Open the document in which you want to embed or link the object.
5. From the Edit menu of this document, choose Paste to embed the object, or choose Paste Link to link the object.

Some applications have a Paste Special command. If you choose this command, a dialog box with a list of formats appears. Select the format you want the information to be displayed in, and then choose Paste to embed the object, or choose Paste Link to link the object. The embedded or linked object appears in your document.

Note Some formats do not work with OLE. If you choose such a format and then choose Copy or Paste, information is copied from the Clipboard, but an embedded or linked object is not created.

CHAPTER 7

Network Applications

This chapter introduces the applications included in the Network group of Microsoft® Windows™ for Workgroups version 3.11. The Network group includes applications that you can use to perform many common networking tasks:

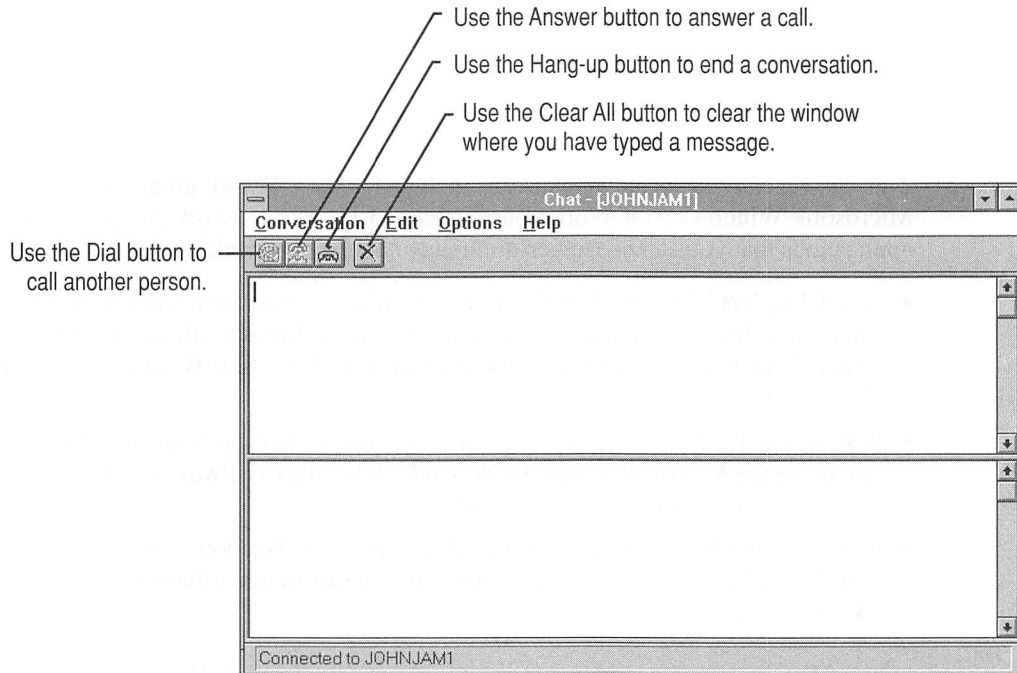
- Use Chat, Net Watcher, WinMeter, and WinPopup to perform workgroup tasks, such as exchanging messages or monitoring workgroup activities and resource usage. If you are running a network other than the Microsoft Windows Network, these applications may not be set up.
- Use Schedule+ to schedule events and communicate with co-workers who are using the Microsoft Windows Network. Schedule+ is always installed, regardless of the network you are running.
- Use Log On/Off to log on to and off of the Microsoft Windows Network. Log On/Off will not be set up if you are running a network other than the Microsoft Windows Network.

Online Help provides procedures for performing tasks. To view Help, choose the Contents command from the Help menu in each application.

Chat



Using Chat, you can have an electronic conversation with up to seven other people by exchanging typed messages. Unlike an electronic mail message that you compose and send to another person, a Chat message is interactive: it is visible to the recipient as you type it.



For information about the following tasks, see Help for Chat:

- Starting or ending a conversation
- Answering a call
- Calling more than one person
- Changing the font or background color
- Turning sound on or off

Log On/Off



You can log on to or off of the Microsoft Windows Network at any time by choosing the Log On/Off icon. If you are logged off, choosing this icon logs you on; if you are logged on, it logs you off.

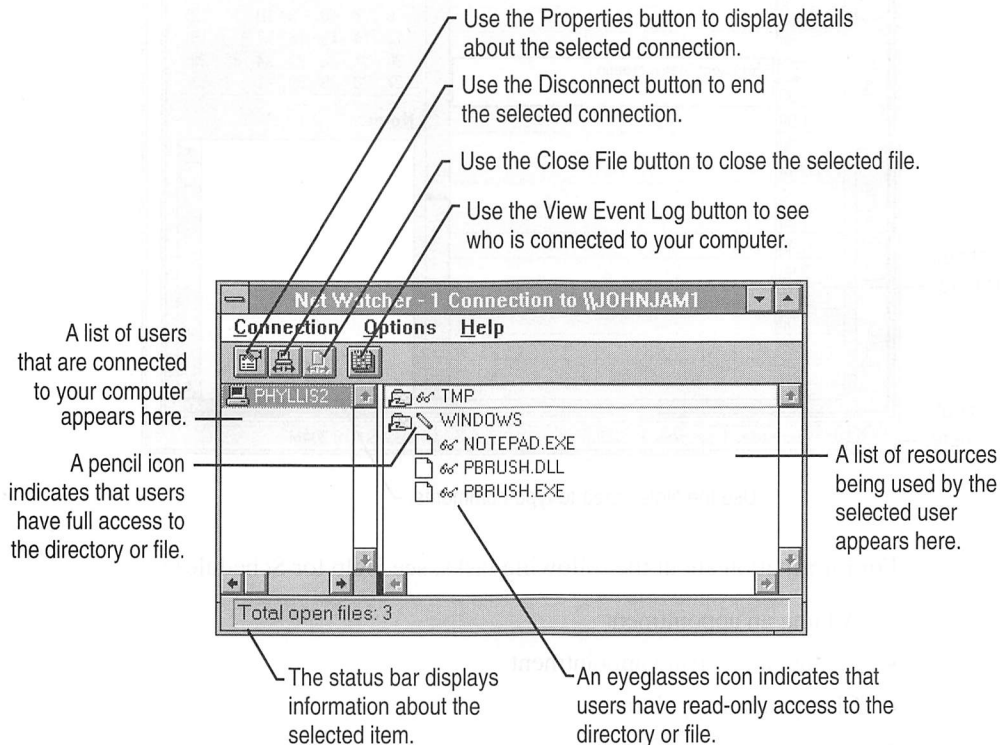
When logged off, you can share your resources but cannot gain access to resources that are being shared by other people. To browse through and connect to resources that are being shared by others, you must first log on.

You can also log on and off by using the Network option in Control Panel. For more information, see Chapter 8, “Customizing Network Settings and Improving Performance.”

Net Watcher



You can use Net Watcher to find out which of your computer resources, such as files and printers, are being used by other people on the network. You can also see which computers are connected to your computer and, if necessary, disconnect them.



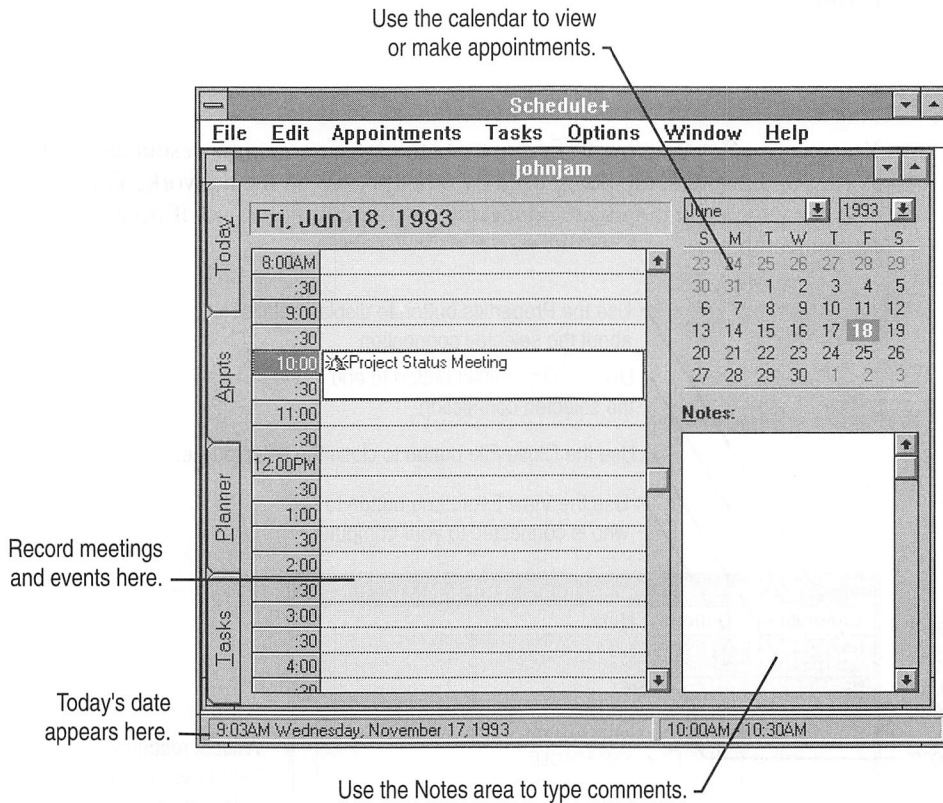
If you are using the event log, you can also use Net Watcher to view your log file. For information about the event log, see Chapter 8, “Customizing Network Settings and Improving Performance.”

For more information about using Net Watcher, see Help for Net Watcher.

Schedule+



Schedule+ is a personal scheduling tool that you can use to keep track of appointments and tasks and to record notes. You can also use Schedule+ to check the schedules of other people and share your schedule with them.



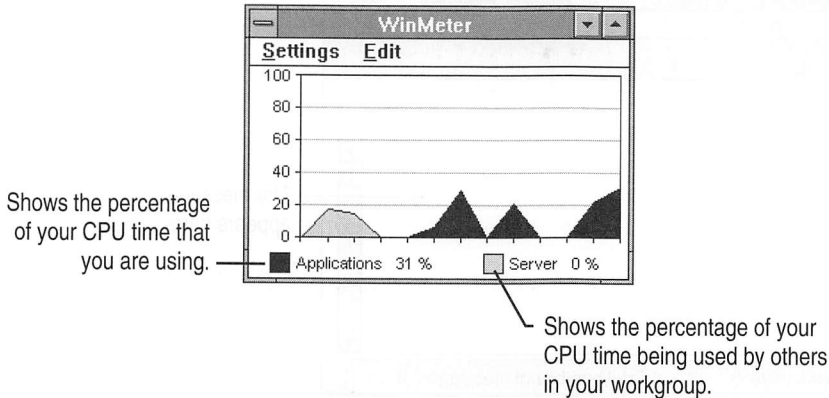
For information about the following tasks, see Help for Schedule+:

- Adding an appointment
- Adding a recurring appointment
- Changing an appointment
- Scheduling a meeting
- Adding a task

WinMeter



WinMeter graphically displays how much of your central processing unit (CPU) you and other people on the network are using. For example, if someone in your workgroup is printing a file from your hard disk, WinMeter displays the percentage of your CPU being used as the other person connects to and prints the file.



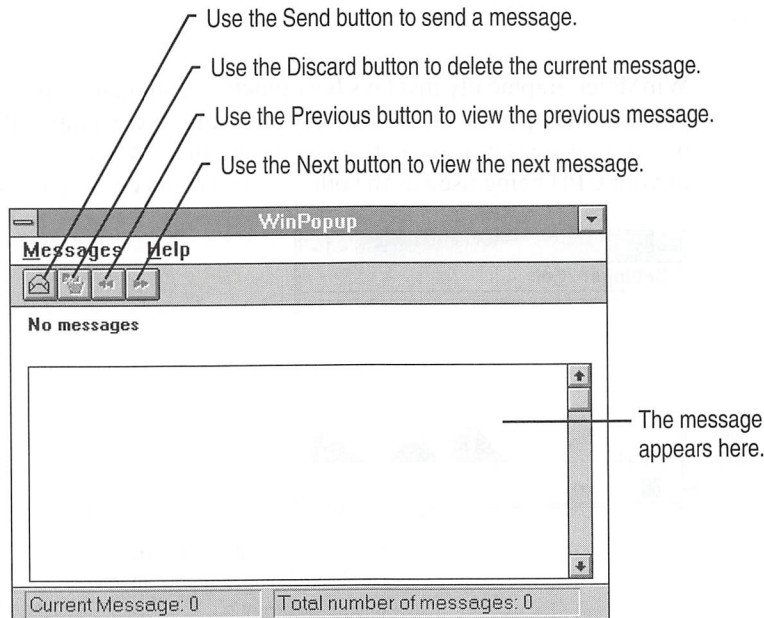
Note To adjust the speed at which your applications run and your resources are shared when others are connected to your computer, choose the Networks icon in Control Panel, and then choose the Startup button. For more information, see Help for Control Panel.

WinPopup



You can use WinPopup to send and receive messages if you have Microsoft Windows Network, LAN Manager, or Windows NT™ or Windows NT Advanced Server. However, you must specify Microsoft Windows Network during Windows Setup in order for WinPopup to be set up.

You can send a message to another person or computer, or you can send a message simultaneously to all the members of a workgroup. You also can set up WinPopup to notify you when a document has finished printing.



WinPopup does not start automatically. You can either start WinPopup by double-clicking the WinPopup icon in the Network group, or you can choose to have WinPopup start automatically each time you start Windows for Workgroups.

► **To start WinPopup each time you start Windows for Workgroups**

1. In the Main group, choose the Control Panel icon.
2. In the Control Panel window, choose the Network icon.
3. Choose the Startup button.
4. Under Startup Options, select the Enable WinPopup check box, and then choose OK.

For information about the following tasks, see Help for WinPopup:

- Sending a message
- Deleting the current message
- Viewing other messages
- Deleting all messages

C H A P T E R 8

Customizing Network Settings and Improving Performance

You can customize the way your computer works with the Microsoft® Windows™ Network. Some of the features described in this chapter also apply to using Windows for Workgroups with the Microsoft Windows NT™ operating system, Windows NT Advanced Server, or LAN Manager. For information about other networks, see Chapter 9, “Using Other Networks.”

You can also select options to improve the speed of your applications.

Customizing Microsoft Windows Network Settings

This section provides procedures for the following tasks:

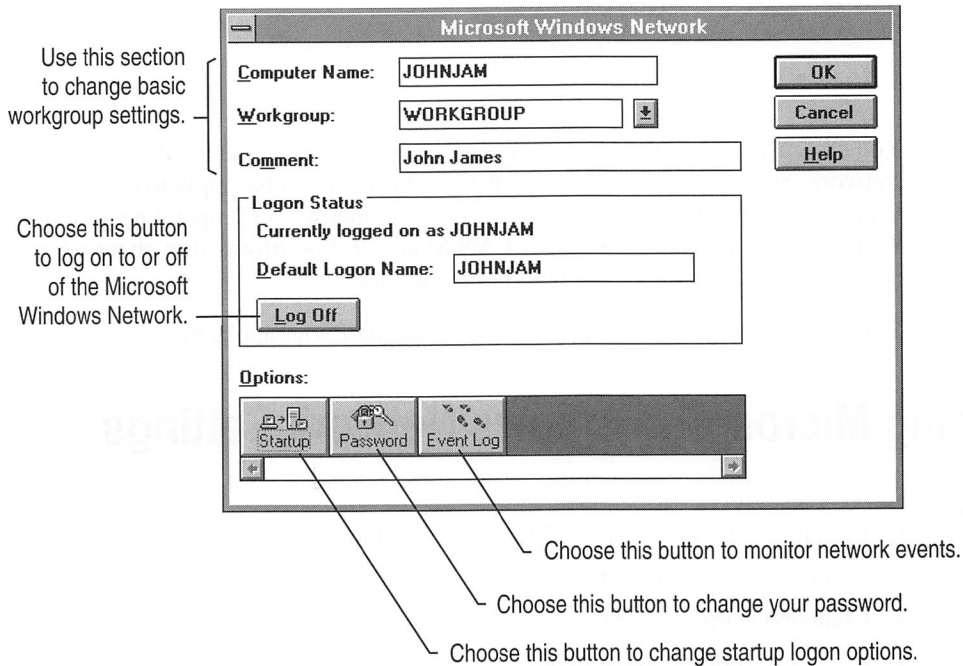
- Logging on to and off of the Microsoft Windows Network
- Changing workgroup settings
- Changing startup settings
- Changing your logon password
- Specifying which network events to log
- Enabling or disabling sharing

Additional tasks, such as using other networks and setting protocols and advanced options for network adapters, are described in Help for Windows Setup. For information about how to install and configure a device driver for a network adapter, see Appendix D, “Configuring Network-Adapter Drivers.”

Customizing Network Settings by Using Control Panel

By using the Network option in Control Panel, you can select startup options for logging on. For example, you can change the default logon name and you can choose to start Windows for Workgroups without logging on to the network.

When you choose the Network icon in the Control Panel window, the Microsoft Windows Network dialog box appears.



Note Several settings that you can change by using the Network option do not take effect until you restart your computer. Before you can restart your computer, you must quit any MS-DOS-based applications that are running. You may want to save your files and quit these applications before changing network settings.

Logging On and Off

You can log on to or off of the Microsoft Windows Network at any time. When logged off, you can share your resources, such as directories and printers, but you cannot gain access to resources being shared by other people. To browse through and connect to resources being shared by others, you must first log on.

Logging off of the network after you are finished using Windows for Workgroups is useful if more than one person uses your computer, or if you don't want unauthorized people to have access to the resources you connect to. If others use your computer, they can log on by using their logon name and gain access to resources.

Caution Logging off disconnects you from other computers or resources that you may be connected to. To prevent losing your work, make sure you save any files you are working on, and quit any application you are running from another person's computer, before you log off.

► To log on or off

1. In the Control Panel window, choose the Network icon.
2. In the Microsoft Windows Network dialog box, choose Log On or Log Off.
For help on the Microsoft Windows Network dialog box, choose the Help button or press F1 while using the dialog box.

Note You can also log on to or off of the Microsoft Windows Network by choosing the Log On/Off icon in the Network group.

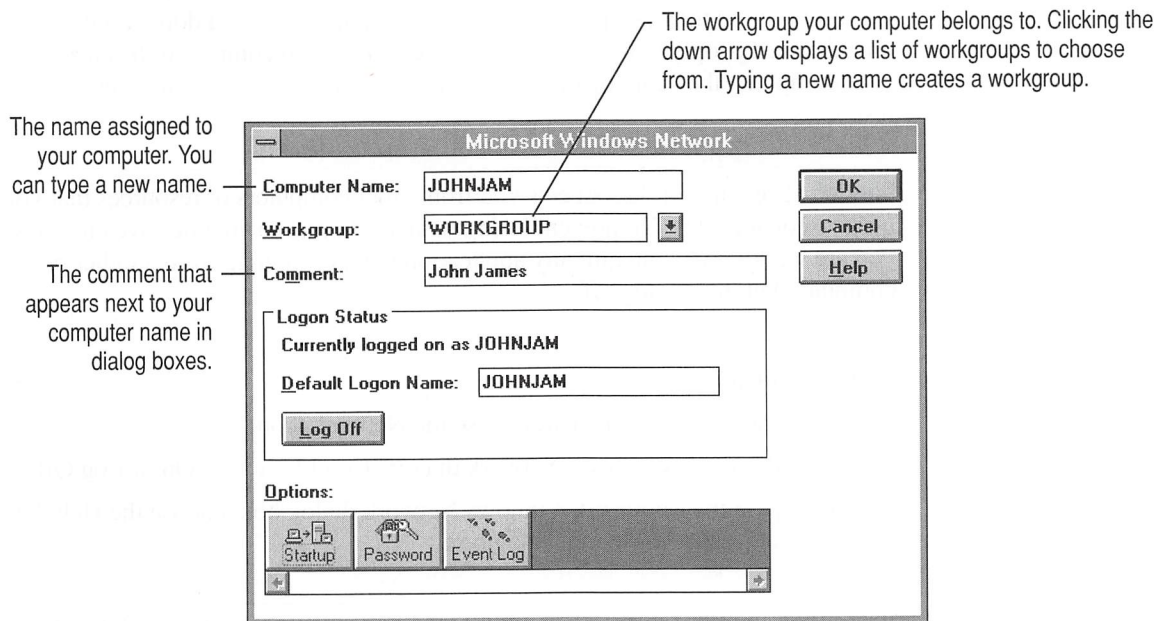
If you choose to log on, you need to specify your logon name and password in the logon dialog box.

Changing Workgroup Settings

You can change your computer name, the workgroup your computer belongs to, and the comment that follows your computer name in dialog boxes that list workgroups and computers. You can also create a new workgroup.

► **To change workgroup settings**

1. In the Control Panel window, choose the Network icon.
2. In the Microsoft Windows Network dialog box, change the settings you want.
For help on the dialog box, choose the Help button or press F1 while using the dialog box.



3. Choose OK.

After you change the settings, a dialog box appears, prompting you to restart your computer. If you have saved your files, you can safely restart.

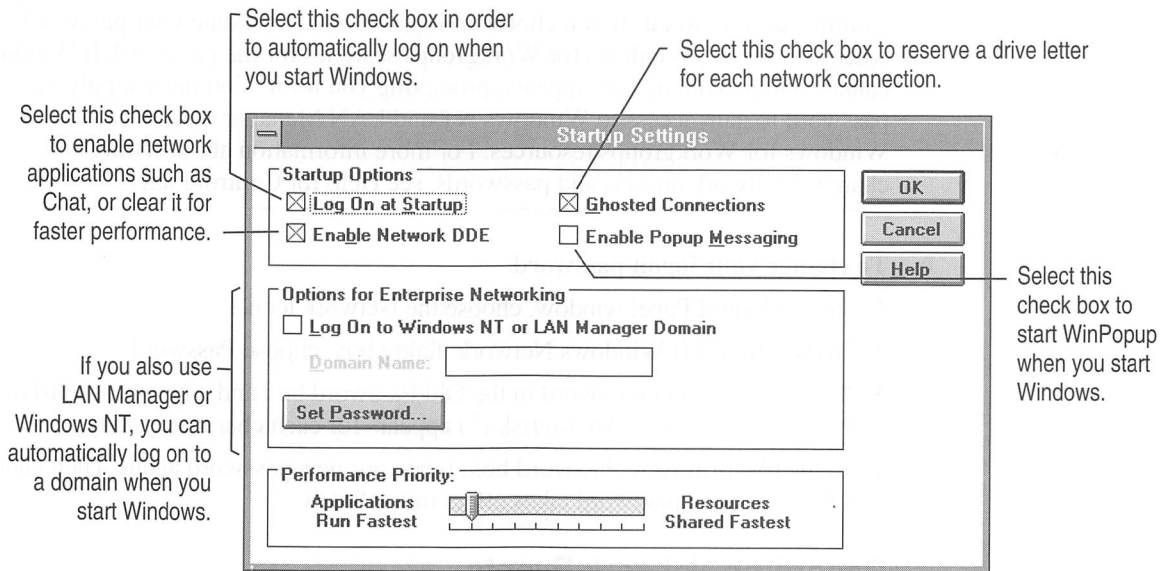
4. Choose Restart Computer to restart.

Changing Startup Settings

You can specify startup options to improve your computer's performance and to automate tasks such as logging on to a network.

► **To specify startup options**

1. In the Control Panel window, choose the Network icon.
2. In the Microsoft Windows Network dialog box, choose Startup.



3. In the Startup Settings dialog box, change the settings you want. Then choose OK.

For help on the dialog boxes, choose the Help button or press F1 while using the dialog boxes.

Changing Your Logon Password

When you connect to a directory, printer, or ClipBook page that someone else is sharing, you may need to supply a password. Windows for Workgroups maintains a list of the passwords you have used and the resources they apply to.

When you start Windows for Workgroups, the logon password you supply “unlocks” the password list. If you connect to a particular resource, and the password for that resource is in the list, you need not supply the password.

If you log on without using a password, your connections are restored automatically and anyone can gain access to them by starting your computer. It is therefore recommended that you use a logon password, and that you change it periodically to keep unauthorized people from using the passwords you save in your password list.

You can use the Network option in Control Panel to change your logon password. If you have been logging on without a password and decide to use one, you can also use the Network option to set your first logon password. If you no longer want to use a logon password, you can delete it.

Note If you are using Microsoft Windows NT or LAN Manager, passwords for servers and domains can also be stored in the password list, if your network

administrator allows it. If you choose to have a domain validate your password when you log on, Windows for Workgroups searches for the password. If Windows cannot find it, a dialog box appears, prompting you for it. You must supply the password to gain access to Windows NT and LAN Manager servers or your Windows for Workgroups resources. For more information about setting and changing network options and passwords, see Help for Control Panel.

► **To change your logon password**

1. In the Control Panel window, choose the Network icon.
2. In the Microsoft Windows Network dialog box, choose Password.
3. Type your current password in the Old Password box and a new password in the New Password box. An asterisk (*) appears for each character you type.
4. In the Confirm New Password box, type your new password again. Then choose OK. Your new password takes effect immediately.

Recording Network Events

There may be times when you want to track things that happen on the network. For example, if you are sharing your printer, you may want a record of how many times people use it. If you have a shared directory, you may want to know who is trying to connect to it. You can record these events in an *event log*.

► **To record network events in the event log**

1. In the Control Panel window, choose the Network icon.
2. In the Microsoft Windows Network dialog box, choose Event Log.
3. Select the Enable Event Log check box.
4. Select the events you want to log from the list on the right, and choose Add to move each to the Record Events list. Or choose Add All. Then choose OK.
5. In the Microsoft Windows Network dialog box, choose OK.

To view the event log, use the Net Watcher application. For information about Net Watcher, see Help for Net Watcher.

Enabling and Disabling Sharing by Using Setup

You can use Windows Setup to control whether you can share your directories or printers with other people on the network.

Note If your network administrator has disabled file and/or print sharing for your network, you will not be able to share your files and/or printers.

► **To enable or disable sharing**

1. In the Network group, choose the Network Setup icon. The Network Setup dialog box appears.
2. If sharing is enabled, the sentence “You can share your files and printers with others” appears. If sharing is disabled, the sentence reads, “You cannot share your files or printers with others.” Choose the Sharing button.
3. In the Sharing dialog box, select one or both check boxes to enable sharing. To disable sharing, clear these check boxes. Then choose OK.
4. In the Network Setup dialog box, choose OK.
A dialog box appears, notifying you that your SYSTEM.INI file has been modified. When you choose OK again, a dialog box appears, prompting you to restart Windows. If you have saved your files, you can safely restart.
5. Choose Restart Windows to restart.

Improving Performance

You can make your applications run faster, using 32-bit disk access and 32-bit file access.

For more information about memory management and performance, see your Windows or Windows for Workgroups user’s guide.

32-Bit Disk Access

For most disk-drive controllers that Windows for Workgroups supports, you can speed transfer of information to and from your hard disks.

Note Using 32-bit disk access can be unreliable on some battery-powered portable computers when the computer’s power-saving features are enabled.

► **To set up 32-bit disk access**

1. In the Control Panel window, choose the 386 Enhanced icon.
2. In the Enhanced dialog box, choose Virtual Memory.
3. In the Virtual Memory dialog box, choose Change.
4. Select the Use 32-Bit Disk Access check box, and then choose OK.
A dialog box appears, prompting you to restart Windows. If you have saved your files, you can safely restart.
5. Choose Restart Windows.

After specifying 32-bit disk access and restarting Windows for Workgroups, you can see whether your disk-drive controllers are compatible with 32-bit disk access.

► **To check your disk-drive controller compatibility with 32-bit disk access**

1. In the Control Panel window, choose the 386 Enhanced icon.
2. In the Enhanced dialog box, choose Virtual Memory.
3. In the Virtual Memory dialog box, look at the Disk Status area. If it reads Disk Access: Using MS-DOS or Disk Access: Using BIOS, your controllers cannot take advantage of 32-bit disk access. If it reads Disk Access: Using 32-Bit Disk Access, at least one of your controllers is able to take advantage of 32-bit disk access.

32-Bit File Access

You can use 32-bit file access to write to and read files from the hard disk more quickly.

32-bit file access also provides a faster way to read from and write to the *disk cache*. Information read from your hard disk is saved in a disk cache in your computer's extended memory. The next time an application tries to read that information from the hard disk, the information is supplied directly from memory instead. Information to be written to disk may also be temporarily stored in the disk cache.

► **To set up 32-bit file access**

1. In the Control Panel window, choose the 386 Enhanced icon.
2. In the Enhanced dialog box, choose Virtual Memory.
3. In the Virtual Memory dialog box, choose Change.
4. Select the 32-Bit File Access check box.

The default cache size is 512K. If you have 4 MB of RAM or less, leave the Cache Size setting at 512K. If you have more RAM, you might want to increase this to 1 MB to speed up file access.

5. Choose OK.
6. Choose Restart Windows.

After specifying 32-bit file access and restarting Windows for Workgroups, you can see which of your disk drives are using 32-bit file access.

► **To see which disk drives are using 32-bit file access**

1. In the Control Panel window, choose the 386 Enhanced icon.
2. In the Enhanced dialog box, choose Virtual Memory.
3. In the Virtual Memory dialog box, look at the Disk Status area. Under File Access, a list of your disk drives is shown, with the type of file access being used on that drive. File Access: 16-Bit means the disk drive cannot take advantage of 32-bit file access. File Access: 32-Bit means the disk drive is using 32-bit file access.

Improving Performance with 32-Bit File Access

In Windows for Workgroups version 3.11, 16-bit file access is the default and 16-bit SMARTDrive caches are used for disk caching. When you use 32-bit file access, a 32-bit cache is created for use with file management on your hard disks, and the SMARTDrive cache is used only with your floppy disk drives.

If you rarely or never use your floppy disk drives, you can set your SMARTDrive Windows cache (*WinCacheSize*) to 0 to save memory. (SMARTDrive typically uses a cache of 512K for 4 MB RAM systems and a 2 MB cache for 8 MB RAM systems.)

If you occasionally use your floppy disk drives, you can reduce the size of your SMARTDrive Windows cache to save memory.

For information about how to disable or reduce the size of your SMARTDrive cache, see “Managing Memory and Performance” in your Windows or Windows for Workgroups user’s guide.

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C H A P T E R 9

Using Other Networks

This chapter describes how to set up the Microsoft® Windows™ for Workgroups version 3.11 operating system for use with other networks.

If you already have a network installed and working, it will be set up to work with the Microsoft Windows Network, the network included with Windows for Workgroups, if it is compatible. Compatible networks include Novell® NetWare® and Banyan® VINES®.

Also, you can use these networks in place of the Microsoft Windows Network. For information about specific versions of networks compatible with Windows for Workgroups, see the online document NETWORKS.WRI. To view this document, you can use the Write application in the Accessories group.

Note You can use the Microsoft Windows Network to gain access to shared resources that are on computers running the Microsoft Windows NT™ operating system, the Microsoft Windows NT Advanced Server, Microsoft LAN Manager, and any other networks compatible with LAN Manager, such as 3Com® 3+Open®, DEC® Pathworks®, and IBM® LANServer.

For an overview of networking terms and concepts, see Chapter 1, “A Brief Overview of Microsoft Windows Networking.”

Setting Up Windows for Workgroups to Work with Another Network

If you want to use another network either in addition to or in place of the Microsoft Windows Network, you can set it up either when you set up Windows for Workgroups or later from within Windows.

Note Before you set up Windows for Workgroups to work with another network, make sure the other network is correctly set up on your computer and that you can use it to connect to a file or print server. For more information, see your network documentation and the Windows for Workgroups online document NETWORKS.WRI.

► **To set up Windows for Workgroups to use another network**

1. In the Network group, choose the Network Setup icon.
2. In the Network Setup dialog box, choose Networks. The Networks dialog box appears.
3. If you want to use your network with the Microsoft Windows Network, make sure Install Microsoft Windows Network is selected. Then select Other, and select the network you want from the list.

If you want to use that network without the Microsoft Windows Network, select Install Windows Support For The Following Network Only. Then select the network you want from the list.

4. Choose OK.
5. In the Network Setup dialog box, choose OK. A dialog box appears, prompting you to restart your computer. If you have saved your files, it is safe to restart.
6. Choose Restart Computer in order for your changes to take effect.

Connecting to a Directory on a Network Server

Connecting to a directory on a network server is similar to connecting to a shared directory on another computer running the Microsoft Windows Network. For more information about connecting to a shared directory, see Chapter 3, “New File Manager and Print Manager Features.”

► **To connect to a directory on a network server**

1. In the Main group, choose the File Manager icon.
2. On the toolbar, click the Connect Network Drive button. Or choose Connect Network Drive from the Disk menu.
3. In the Connect Network Drive dialog box, type the path for the network directory in the Path box. In the Drive list, select the letter you want to use for the connection. Then choose OK.

Or choose the button named for your network. For example, if you are using Novell NetWare, choose NetWare. The Network–Drive Connections dialog box appears.

4. In the Network–Drive Connections dialog box, select the letter you want to use for the connection, and then either type the network path in the Path box or use the Browse button to find and select a directory on one of the network servers you are connected to. By using the Browse Connections dialog box, you can also connect to additional servers.

If you are running Novell NetWare, you can also perform NetWare-specific tasks when using the Network–Drive Connections dialog box.

5. Choose Connect (Map) to connect to the specified directory.
6. Choose Close.

For help, choose the Help button or press F1 while using the dialog boxes.

You disconnect from a directory on a network server the same way you disconnect from a shared directory on another computer in a workgroup. For more information, see Chapter 3, “New File Manager and Print Manager Features.”

Connecting to a Network Printer

Using Windows for Workgroups, you can easily connect to network printers.

► To connect to a network printer

1. In the Main group, choose the Print Manager icon.
2. On the toolbar, click the Connect Network Printer button. Or choose Connect Network Printer from the Printer menu.
3. In the Connect Network Printer dialog box, type the path for the printer in the Path box. Select the port you want to use, and then choose OK.

Or choose the button named for your network. For example, if you are using Novell NetWare, choose NetWare.

4. In the Network–Printer Connections dialog box, select the port and the path of the printer you want to connect to. Then choose Connect.

You can also disconnect from printers, connect to additional servers, and set printer options.

5. Choose Close.

For help, choose the Help button or press F1 while using the dialog boxes.

For more information, see Chapter 3, “New File Manager and Print Manager Features.”

Using Microsoft Windows NT and Microsoft LAN Manager

Using Windows for Workgroups, you can connect to and use files, directories, and printers that are shared on a Microsoft Windows NT or Microsoft LAN Manager server. In addition, people using LAN Manager can connect to the resources you have shared with the Microsoft Windows Network. For you to be able to view the name of a LAN Manager server, at least one computer on the network must have a workgroup name that matches the name of the primary domain of the LAN Manager server.

You can use Control Panel to set options for Windows NT or LAN Manager. You can choose to log on to a LAN Manager domain when you log on to the Microsoft Windows Network. You can also change your passwords on various LAN Manager domains.

► To set Windows NT or LAN Manager options

1. In the Main group, choose the Control Panel icon.
2. In the Control Panel window, choose the Network icon.
3. If you want to log on to a Windows NT or LAN Manager domain when you log on to Windows for Workgroups at startup, choose the Startup button under Options. The Startup Settings dialog box appears.
4. Under Options For Enterprising Networking, select the Log On To Windows NT Or LAN Manager Domain check box.
5. In the Domain Name box, type the name of the domain you want to log on to.
6. If you want to change your password for a Windows NT or LAN Manager domain, choose Set Password, complete the Change Password dialog box, and then choose OK. Your new password takes effect immediately.
7. In the Startup Settings dialog box, choose OK.
8. In the Microsoft Windows Network dialog box, choose OK.

For help, choose the Help button or press F1 while using the dialog boxes.

A P P E N D I X A

Maintaining Mail

Before people in your workgroup can use Mail, they need to connect to a *workgroup post office* (WGPO). If your workgroup does not have a WGPO, someone needs to create and manage one. You should read this appendix if you are the person who has that responsibility.

Mail consists of the Mail application and the WGPO. The Mail application runs on each workgroup member's computer. The WGPO is stored in a directory on one computer running Microsoft® Windows™ for Workgroups and is shared by workgroup members. The Postoffice Manager command, which you use to manage the WGPO, is available only in the copy of Mail running on the computer where the WGPO is located.

Important The WGPO can be on any computer in the workgroup, but Postoffice Manager is installed only on the computer of the person who sets up the WGPO. Only the person maintaining the Mail system can use Postoffice Manager.

The WGPO contains information about mail accounts. To communicate by mail, people must be connected to the same WGPO and each person must have a mail account. Two people connected to different WGPOs cannot exchange messages. If you want people who are connected to different WGPOs to send mail to each other, you must purchase the Microsoft Mail: PostOffice Upgrade for Microsoft Windows for Workgroups.

You can use Postoffice Manager to perform the following tasks:

- Add or remove names from the WGPO.
- Modify accounts.
- Manage the disk space where the WGPO is stored.
- Manage the Mail system files.

For more information about Mail, including information for advanced users, see the MAIL.WRI online document. To view this document, you can use the Write application in the Accessories group.

If your company already has a message system that you will use instead of Mail, see “Using Mail with Other Message Systems” later in this chapter.

Creating a Workgroup Post Office

There are three steps to creating a workgroup post office:

- Verify that there is enough disk space on the computer where the WGPO will be stored.
- Create the WGPO and an administrator account.
- Share the WGPO, so that all people in your workgroup can use it.

Instead of creating a WGPO on a computer that is part of your workgroup, you can create it on an existing network, such as one used with Novell® NetWare® or Microsoft LAN Manager. For information, see “Using Mail with Other Message Systems” later in this chapter.

Verifying Disk Space

There should be 360K of available disk space for an empty WGPO, in addition to disk space for accounts. For a small WGPO with only a few accounts, only a few megabytes of disk space are required. For a larger WGPO, you may need 10 to 15 MB, or more.

If there are many people using the WGPO or there is a high volume of messages, either use a computer just for the post office, or use a 486 computer with a fast disk drive and at least 8 MB of memory.

On each workgroup member's computer, there should be enough available disk space for his or her Mail messages. The amount of disk space needed depends on the number and type of messages stored in Mail. A small number of messages requires about 100K of disk space; a large number may require several megabytes.

Creating the Post Office and the Administrator Account

After you have verified disk space, you can create the WGPO and the administrator account. There can be only one WGPO, but it can contain many workgroups. Only members of the same WGPO can communicate with each other.

The administrator account is the first account you create in the WGPO. You can modify this account but not remove it.

Important The computer where your WGPO is located must be turned on at all times so that people can exchange mail.

► **To create a WGPO and the administrator account**

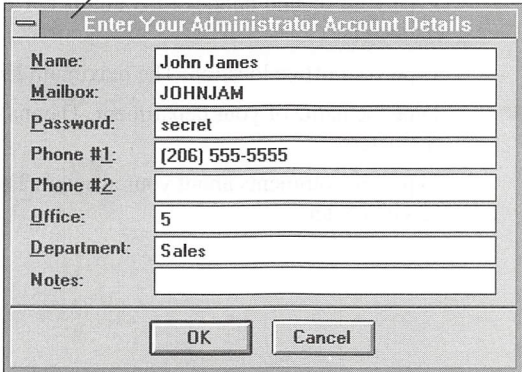
1. In the Network group, choose the Mail icon.
2. In the Welcome To Mail dialog box, select Create A New Workgroup Postoffice, and then choose OK.
3. A dialog box appears, asking whether you want to create a post office. Choose Yes.
4. In the Create Workgroup Postoffice dialog box, select a location for your WGPO. You can create the WGPO either on your hard disk or on a shared directory on a network.

To create the WGPO on your hard disk, select a drive from the Drives box and a directory from the Create WGPO In list.

To create the WGPO on a network, choose Network, and then select a computer name and shared directory in the dialog box that appears.

5. Choose OK. The following dialog box appears.

Use this dialog box to create the administrator account.



Enter Your Administrator Account Details	
Name:	John James
Mailbox:	JOHNJAM
Password:	secret
Phone #1:	(206) 555-5555
Phone #2:	
Office:	5
Department:	Sales
Notes:	
<div>OK Cancel</div>	

6. Supply the needed information, and then choose OK.
The tables following this procedure explain the options.
7. In the confirmation dialog box that appears, choose OK.

Note No distinction is made between uppercase and lowercase letters; for example, *MARIAS*, *MariaS*, and *marias* are considered to be the same. Use a

name that is easy to remember. You should not use characters from the ASCII extended character set. You can use only letters and numbers in the Mailbox and Password boxes.

You must provide the following information when creating an administrator account.

Box	Description
Name	Type your full name. The maximum length is 30 characters, and the default is the name you used when setting up Windows for Workgroups.
Mailbox	Type a unique name that is easy to remember, such as an abbreviation of your name. You will use this name to sign in. The maximum length is 10 characters, and the default is your Windows logon name.
Password	Type a password that is easy to remember. You will use this password and your mailbox name to sign in to Mail. The maximum length is 8 characters, and the default is PASSWORD.

The following is optional information you can specify.

Box	Description
Phone #1	Type your phone number. The maximum length is 32 characters.
Phone #2	Type your second phone or fax number. The maximum length is 32 characters.
Office	Type your office location. The maximum length is 32 characters.
Department	Type the name of your department. The maximum length is 32 characters.
Notes	Type any comments about your account. The maximum length is 128 characters.

Sharing the Workgroup Post Office

After you create the WGPO, you must share the WGPO directory with all people connected to the post office.

Caution If you have put the WGPO on a Novell NetWare server, do not share the directory.

► **To share the workgroup post office**

1. In the Main group, choose the File Manager icon.
2. Select the WGPO directory.
3. On the toolbar, click the Share As button. Or choose Share As from the Disk menu.
4. In the Share Name box, type a name for your post office. The default is WGPO, and this name is recommended. If you use a different name, do not use spaces; use letters or numbers.
5. Select the Re-share At Startup check box.
6. Under Access Type, select Full Access.
7. Under Passwords, you can type a full-access password for your WGPO. This is recommended only if you do not want some workgroup members to have access to your mail.
8. Choose OK.

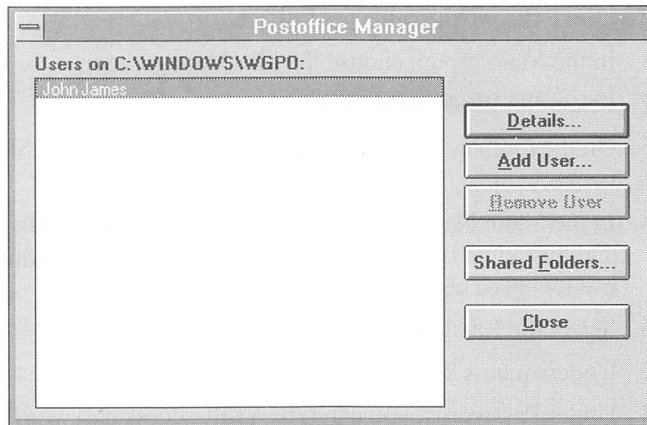
Note After you create a WGPO, the Postoffice Manager command appears on the Mail menu when you start Mail. This command appears only on the computer where you created your WGPO. If you want to run Postoffice Manager from another computer in the workgroup, you must modify your MSMAIL.INI file. For information about modifying MSMAIL.INI, see the online document MAIL.WRI. To view this document, you can use the Write application in the Accessories group.

Starting Postoffice Manager

Before you can start Postoffice Manager, Mail must be running. (For information about starting Mail, see Chapter 4, "Mail.")

► **To start Postoffice Manager**

- From the Mail menu, choose Postoffice Manager. The following dialog box appears.



Using this dialog box, you can add names to the post office, modify accounts, and remove names.

Adding a Person to the WGPO

You can add people to the WGPO, or people can add themselves.

Note We recommend that people add themselves to the WGPO. This can minimize confusion about user information.

If people start Mail on their computer and no account is set up yet, they can add their account information at that time. Make sure that there is only one account for each person. For information about adding an account when starting Mail, see Chapter 4, "Mail."

If you decide to add people to the WGPO, you must provide the name, mailbox name, and password for each person. You can also provide phone number(s), office location, and department, in addition to comments about the account.

► **To add a person's name to the WGPO**

1. From the Mail menu, choose Postoffice Manager.
2. In the Postoffice Manager dialog box, choose Add User.
3. Supply the appropriate information, and then choose OK.

For more information, see “Creating a Workgroup Post Office” earlier in this chapter.

Modifying an Account

You can modify information about a person's account. This information appears only in the Address Book, which you can view by clicking the Address button while composing a message. Information on the person's computer is not updated when you modify the account.

If a person has forgotten his or her password, you can change the password for them; otherwise, people should update their own password when it expires.

► **To modify an account**

1. From the Mail menu, choose Postoffice Manager.
2. In the Postoffice Manager dialog box, select the name of the person whose account you want to modify.
3. Choose Details. The following dialog box appears.

The name of the person whose account you are changing appears here.

Peter Black	
Name:	Peter Black
Mailbox:	peterb
Password:	*****
Phone #1:	(206) 555-5554
Phone #2:	
Office:	3
Department:	Sales
Notes:	
OK Cancel	

4. Change information as needed, and then choose OK.

Removing an Account

Using Postoffice Manager, you can remove an account from your WGPO.

Note You cannot remove the administrator's account.

► **To remove a name**

1. From the Mail menu, choose Postoffice Manager.
2. In the Postoffice Manager dialog box, select the name you want to remove.
3. Choose Remove User. A confirmation message appears.
4. Choose Yes.

Managing Disk Space

Managing the disk space where the WGPO is stored is one of the most important administrative tasks in maintaining Mail. You must check the status of shared folders and compress these folders to recover unused disk space.

A *shared folder* is public and is stored in the WGPO, unlike a person's private folders, which are stored on his or her computer. All workgroup members can open shared folders to view messages. Anyone in the WGPO can create a shared folder and specify the type of access allowed (Read, Write, or Delete).

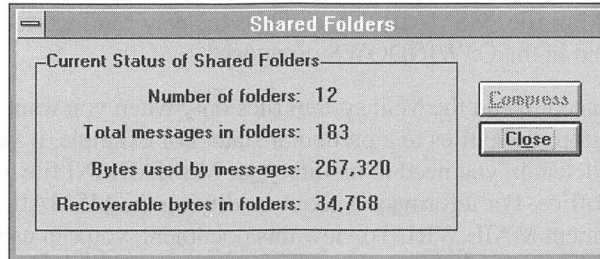
Checking the Status of Shared Folders

By checking the status of shared folders, you determine:

- The number of shared folders.
- The number of messages stored in shared folders.
- The amount of disk space the messages use.
- The amount of disk space you can recover by compressing shared folders.

► **To check the status of shared folders**

1. From the Mail menu, choose Postoffice Manager.
2. In the Postoffice Manager dialog box, choose the Shared Folders button.
The Shared Folders dialog box appears.



Compressing Shared Folders

If you run out of disk space, you need to compress shared folders (you can still gain access to a compressed folder). If you require even more disk space, you can delete old messages and unused folders or move the WGPO to a different directory.

If your shared folders contain a large number of messages, it may take a long time to compress them.

► **To compress shared folders**

1. Ask all workgroup members to close shared folders. You cannot compress shared folders while other people are using them.
2. From the Mail menu, choose Postoffice Manager.
3. In the Postoffice Manager dialog box, choose Shared Folders.
4. In the Shared Folders dialog box, choose Compress.
5. Choose Close.

Managing the Mail System Files

Each person who is using the WGPO has two Mail system files:

- The message file (MSMAIL.MMF)
- The Mail file (MSMAIL.INI)

When you create a WGPO or when workgroup members connect to a post office, these files are automatically modified.

The message file, MSMAIL.MMF, stores messages, message folders, and the Personal Address Book. This file is updated as messages are received. The message file for each workgroup member is stored on his or her computer. Your message file is located in the directory where you set up Windows for Workgroups (the default is C:\WINDOWS).

The Mail file, MSMAIL.INI, controls the way Mail works. This file is usually located in the C:\WINDOWS directory.

You need to edit the Mail system files only when you want to change functionality or restore these files to a particular state. For example, if you set up a WGPO and then delete it, you need to modify your MSMAIL.INI file to connect to a different post office. For information about modifying the MSMAIL.INI file, see the online document MAIL.WRI. To view this document, you can use the Write application in the Accessories group.

Backing Up and Restoring the MSMAIL.MMF File

In general, you don't need to modify your Mail system files; however, you might want to restore them to a particular state.

It is a good practice to regularly back up your MSMAIL.MMF file. When you back up and restore this file, all your folders are backed up and restored. If you want to back up or restore only some of your folders, use the Export Folder and Import Folder commands. For more information about these commands, see Help for Mail.

► To back up your MSMAIL.MMF file

1. From the Mail menu, choose Backup.
2. In the File Name box, specify the name and location of your backup file—for example, C:\WINDOWS\MARIA.MMF.
3. Choose OK.

► To restore your MSMAIL.MMF file

1. In the Main group, choose the File Manager icon.
2. Select the backup copy of your message file.
3. From the File menu, choose Rename.
4. In the To box, type **c:\windows\msmail.mmf**
5. Choose OK.

The backup file becomes your message file, and the messages and folders you had when you backed up the file are displayed. New messages that you received after you backed up your message file are not displayed.

Using Mail with Other Message Systems

To connect a workgroup post office to another workgroup post office, you must purchase Microsoft Mail Postoffice Upgrade for Windows for Workgroups for each post office. To connect to another message system, such as X.400 or SMTP, the Microsoft Mail Postoffice upgrade is required, as well as the gateway software which enables the two message systems to exchange information.

Each message system can connect to the workgroup post office by using one or more specific gateways. For a list of message systems and gateways, see the online document MAIL.WRI. To view this document, you can use the Write application in the Accessories group.

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A P P E N D I X B

Accessibility for People with Disabilities

Microsoft is committed to making its products and services easier for everyone to use. This appendix provides information about the following products and services that make the Microsoft® Windows™ operating system more accessible for people with disabilities:

- Microsoft services for people who are deaf or hard-of-hearing
- Access Pack for Microsoft Windows, a software utility that makes using Windows easier for people with motion or hearing disabilities
- Keyboard layouts designed for people who type with one hand or a wand
- Microsoft software documentation on audio cassettes and floppy disks
- Products for people who are blind or have low vision
- Tips for customizing Windows for Workgroups
- Other products and services for people with disabilities

Note Except where noted, the information in this appendix applies only if you acquired Windows in the United States. If you acquired Windows elsewhere, your package contains a subsidiary information card listing Microsoft support services telephone numbers and addresses. You can contact your subsidiary to find out whether the products and services described are available in your area.

Services for People Who Are Deaf or Hard-of-Hearing

Through a text telephone (TT/TDD) service, Microsoft provides people who are deaf or hard-of-hearing with complete access to Microsoft product and customer services.

You can contact Microsoft Sales and Service on a text telephone by dialing (800) 892-5234 between 6:30 A.M. and 5:30 P.M. Pacific time. For technical assistance, you can contact Microsoft Product Support Services on a text telephone at (206) 635-4948 between 6:00 A.M. and 6:00 P.M. Pacific time. Microsoft support services are subject to Microsoft prices, terms, and conditions in place at the time the service is used.

Access Pack for Microsoft Windows

Microsoft distributes Access Pack for Microsoft Windows, which provides people with motion or hearing disabilities better access to computers running Windows. Access Pack contains several features that do the following:

- Enable single-finger typing of SHIFT, CTRL, and ALT key combinations.
- Ignore accidental keystrokes.
- Adjust the rate at which a character is repeated when you hold down a key, or turn off character repeating entirely.
- Prevent extra characters if you unintentionally press a key more than once.
- Enable you to control the mouse cursor by using the keyboard.
- Enable you to control the computer keyboard and mouse by using an alternate input device.
- Provide a visual cue when the computer beeps or makes other sounds.

Access Pack for Microsoft Windows is included in the Windows Driver Library, in the file ACCP.EXE. If you have a modem, you can download Windows Driver Library components from network services, including CompuServe®, GENie™, Microsoft OnLine, or various user-group bulletin boards (such as the bulletin-board services on the Association of PC User Groups network). Access Pack is also available from Microsoft Download Service (MSDL), which you can reach by calling (206) 936-MSDL (936-6735) any time except between 1:00 A.M. and 2:30 A.M. Pacific time. To use MSDL, use the following communications settings:

Baud rate	1200, 2400, or 9600	Data bits	8
Parity	None	Stop bits	1

People within the United States who do not have a modem can order Access Pack on disks by calling Microsoft Product Support Services at (206) 637-7098 or (206) 635-4948 (text telephone).

Keyboard Layouts for Single-Handed Users

Microsoft distributes Dvorak keyboard layouts that make the most frequently typed characters on a keyboard more accessible to people who have difficulty using the standard “QWERTY” layout. There are three Dvorak layouts: one for two-handed users, one for people who type with their left hand only, and one for people who type with their right hand only. The left- or right-handed keyboard layouts can also be useful for people who type with one finger or a wand. You do not need to purchase any special equipment in order to use these features.

Windows for Workgroups already supports the two-handed Dvorak layout, which can be useful for coping with or avoiding repetitive-motion injuries associated with typing. To use this layout, choose the International icon in Control Panel. The two layouts for people who type with one hand are distributed as Microsoft Application Note GA0650. This note is also contained in file GA0650.ZIP on most network services or GA0650.EXE on the Microsoft Download Service (MSDL). For instructions on using network services and MSDL, see the preceding section, “Access Pack for Microsoft Windows.”

Documentation on Audio Cassettes and Floppy Disks

People who have difficulty reading or handling printed documentation can obtain most Microsoft publications from Recording for the Blind, Inc. Recording for the Blind distributes these documents to registered members of their distribution service either on audio cassettes or on floppy disks. More than 80,000 titles are available, including Microsoft product documentation and books from Microsoft Press. You can contact Recording for the Blind at the following address or phone numbers:

Recording for the Blind, Inc.	Phone :	(800) 221-4792
20 Roszel Road	Phone outside the U.S.:	(609) 452-0606
Princeton, NJ 08540	Fax:	(609) 987-8116

Products for People Who Are Blind or Have Low Vision

There are numerous products available to help people who are blind or have low vision use Microsoft Windows. For people with low vision there are screen-enlargement utilities, and for people who cannot use visual information there are screen readers that provide synthesized voice or refreshable Braille displays. For more information about the various products available, see “Getting More Information” later in this appendix.

In addition, people with low vision can customize the appearance of Microsoft Windows to suit their needs. For more information, see the following section.

Customizing Windows for Workgroups

There are many ways you can adjust the appearance and performance of Windows for Workgroups, the mouse, and the keyboard to suit varying vision and motor abilities without requiring any additional software or hardware.

For more information about the WIN.INI and SYSTEM.INI files in the following list, use Write to view the WININI.WRI and SYSINI.WRI online documents. For more information about using Control Panel, see your Windows or Windows for Workgroups user's guide.

You can use the following methods to adjust the appearance of Windows for Workgroups:

- If you have trouble differentiating the colors in Windows, or if they cause eyestrain, you can adjust them by using the Colors option in Control Panel or by modifying entries in the **[colors]** section of the WIN.INI file.
- If you have trouble reading the Windows system fonts, you can increase their size by using the **FixedFon.Fon**, **Fonts.Fon**, and **OEMFonts.Fon** entries in the **[boot]** section of the SYSTEM.INI file.

Note You should only replace the default fonts with system font files supplied with Windows, such as 8514FIX.FON, 8514SYS.FON, and 8514OEM.FON. Using other fonts may cause some applications to display text incorrectly. You need to copy these files from your Setup disks by using the **expand** command. You cannot use TrueType fonts for these entries.

- If you have trouble reading icon titles, you can adjust their appearance by using the **IconTitleFaceName** and **IconTitleSize** entries in the **[desktop]** section of WIN.INI.
- If you have trouble reading full-screen messages, you can adjust the colors by using the **MessageBackColor** and **MessageTextColor** entries in the **[386Enh]** section of SYSTEM.INI.
- If the desktop pattern or wallpaper causes eyestrain, you can change them by using the Desktop option in Control Panel.
- If you have trouble differentiating the colors in Windows Help, you can adjust them by using the **JumpColor**, **PopupColor**, **MacroColor**, **IFJumpColor**, and **IFPopupColor** entries in the **[Windows Help]** section of WIN.INI.
- If you have trouble reading the text in Mail in Windows, you can adjust the fonts by using the **FixedFont**, **NormalFont**, and **PrintFont** entries in the MSMAIL.INI file. For more information, see the README.WRI online document.

- If you have trouble reading the text in Schedule+, you can adjust the font size and window colors by choosing Display from the Options menu or by using the **ApptBookColor**, **ApptBookLinesColor**, **LargeFont**, **OtherColor**, **PageBackgroundColor**, **PlannerColor**, **PlannerLinesColor**, and **UserColor** entries in the SCHDPLUS.INI file. For more information, see the README.WRI online document.
- If you have trouble locating the text selection cursor (also known as the caret or insertion point), you can adjust the rate at which it blinks by using the Desktop option in Control Panel.

You can do the following to adjust the performance of the mouse or keyboard:

- If you have difficulty controlling the mouse pointer, you can adjust its speed by using the Mouse option in Control Panel or the **MouseSpeed**, **MouseThreshold1**, and **MouseThreshold2** entries in the [Windows] section of WIN.INI.
- If you have trouble seeing the pointer when it is moving, you can select the Mouse Trails check box (by using the Mouse option in Control Panel), or change the value of the **MouseTrails** entry in the [Windows] section of WIN.INI.
- If you have trouble double-clicking the mouse button, you can adjust the sensitivity by using the Mouse option in Control Panel or by using the **DoubleClickHeight**, **DoubleClickWidth**, and **DoubleClickSpeed** entries in the [Windows] section of WIN.INI.
- If you have trouble positioning the pointer on window borders in order to adjust window size, you can increase the border width by using the Desktop option in Control Panel.
- If you have difficulty using the keyboard because of the speed at which keystrokes repeat or the delay time before they begin repeating, you can make adjustments by using the Keyboard option in Control Panel.

For more information relating to customizing Windows for Workgroups for people with disabilities, see Application Note WG0788. This note is also contained in file WG0788.ZIP on most network services or WG0788.EXE on the Microsoft Download Service (MSDL). For information about obtaining application notes from network services, and information about more features to help you use Windows, see "Access Pack for Microsoft Windows" earlier in this appendix.

Getting More Information

For more information about Microsoft products and services for people with disabilities, contact Microsoft Sales and Service at (800) 426-9400 (voice) or (800) 892-5234 (text telephone).

The Trace R&D Center at the University of Wisconsin–Madison produces a book and a compact disc that describe products that help people with disabilities use computers. The book, titled *Trace ResourceBook*, provides descriptions and photographs of about 2000 products. The compact disc, titled *CO-NET CD*, provides a database of more than 17,000 products and other information for people with disabilities. It is issued twice a year.

You can contact the Trace R&D Center at the following address or telephone numbers:

Trace R&D Center	Voice telephone:	(608) 263-2309
S-151 Waisman Center	Text telephone:	(608) 263-5408
1500 Highland Avenue	Fax:	(608) 262-8848
Madison, WI 53705-2280		

For general information and recommendations on how computers can help specific people, you should consult a trained evaluator who can match your needs with the available solutions. An assistive technology program in your area will provide referrals to programs and services that are available to you. To locate the assistive technology program nearest you, you can contact:

National Information System	Voice/text telephone outside South Carolina:
Center for Developmental	(800) 922-9234, ext. 301
Disabilities	Voice/text telephone inside South Carolina:
Benson Building	(800) 922-1107
University of South Carolina	Voice/text telephone outside the U.S.:
Columbia, SC 29208	(803) 777-6222
	Fax: (803) 777-6058

A P P E N D I X C

Installing Network Hardware

This appendix describes how to install and configure (set up) a *network adapter*, or *card*. A network card enables your computer to connect to other computers on your network. You can install the card before or after setting up Microsoft® Windows™ for Workgroups.

Installation Overview

This appendix gives complete instructions for each of the following steps.

To install and set up a network card in your computer, you need to:

1. Verify that you have the required hardware, such as the network card, cables, connectors, and other items needed during installation.
2. Configure your network card so it will work with your computer.
3. Place the network card in your computer.

Note In some cases, you place the card in your computer before completing step 2, configuring the card.

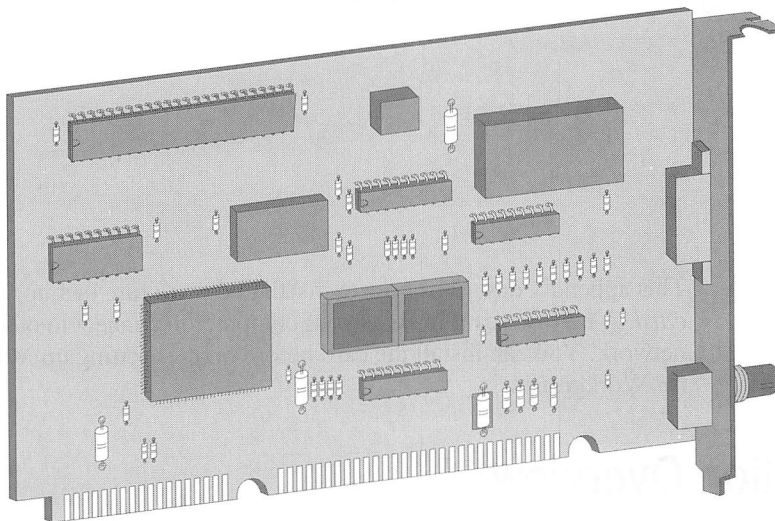
4. Connect cables to the network card, and then connect them to the other computer(s) on your network.

If you have trouble installing the card, see “Setting Up a Network Card” in Appendix E, “Troubleshooting.”

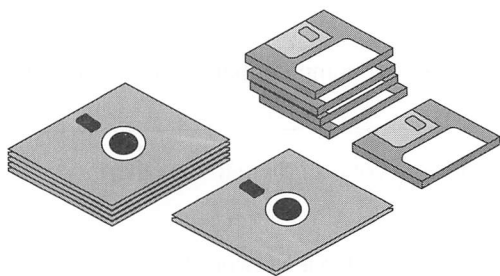
Note In rare cases, you may need a second network card in your computer. Use Windows Setup to install the device driver for the additional card. For more information, see Appendix D, “Configuring Network-Adapter Drivers.”

1. What You Need

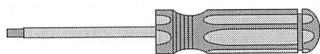
Before you start, be sure you have the following items.



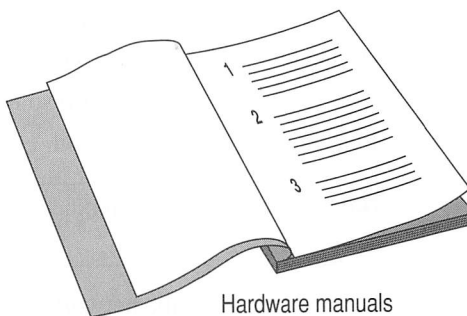
Network card



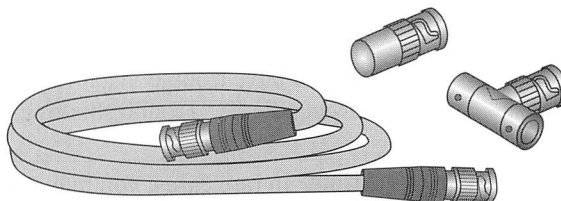
Windows for Workgroups disk set, software disks, and configuration disks



Screwdriver



Hardware manuals



Cables, connectors, terminators, and other cabling hardware

- **The Microsoft Windows for Workgroups disk set.**
- **A network card** compatible with Windows for Workgroups.

Also, be sure your network card is compatible with the type of *bus expansion slots* used in your computer. These are the sockets inside your computer, into which you plug the card. The following table shows the types of slots used in some common computer types.

Type of bus expansion slot	Type of computer
ISA	IBM® PC/AT® and most compatibles
EISA	Certain more powerful PC/AT compatibles
MCA	IBM PS/2® (most models)

Note Most computers not manufactured by IBM are either ISA or EISA. ISA stands for Industry Standard Architecture, EISA for Extended Industry Standard Architecture, and MCA for Microchannel Architecture.

If you don't know which type of slot is used in your computer, see your computer manual or documentation.

- **Software disks**, if any, that were included with your network card.
- **Manuals** or documentation included with your system hardware (computer, network card, cables, and any other devices you have installed).
- **Computer configuration disks**, if any, that were included with your computer. Examples are shown in the following table.

Type of computer	Disk you need
EISA	Configuration disk
IBM PS/2 (most models)	Reference disk

- **Cables, connectors, terminators, and other cabling hardware** compatible with your network card. See your network-card packaging or documentation for cable requirements for your specific card. For information about cables, see "Connecting Cables" later in this appendix.
- **A screwdriver** (for removing your computer cover and slot covers inside your computer).

2. Configuring Your Network Card

Part of the installation procedure involves setting up, or *configuring*, your network card so it works correctly in your computer. To configure, you assign values to various settings on the card, which enable the card to communicate with your computer.

For example, most cards require that you specify at least two of the following:

- Interrupt request level (IRQ)
- Base input/output (I/O) port
- Base memory address (optional on some cards)

These settings are described in detail in “How to Determine Which Configuration Settings to Use” later in this appendix.

Use Default Settings When Possible

In most cases, a network card comes preconfigured with common, or default, settings. The documentation that came with your card usually describes these settings. If you don't know which settings to use when configuring your card, begin by trying the default settings.

If your network card does not have a default value for a setting, or these settings do not work, see “How to Determine Which Configuration Settings to Use” later in this appendix. The section contains alternative values to use.

Commonly Used Settings

If the default settings do not work, you may want to try the following settings for your card, which will work in many situations: IRQ5, base I/O port 300, and base memory address D0000. (For some network cards, the final “0” is dropped from the base memory address—for example, D000.)

When to Configure the Card

Depending on the type of network card you have, you can configure it before or after placing it in your computer. Some cards combine the two methods.

Configuring Before Placing the Card in Your Computer

Some cards require you to manually move jumpers or set switches on the card before placing the card in your computer. (For information, see the following section, “Using Jumpers and Switches to Configure a Network Card.”)

Before placing a network card in your computer, see your network-card documentation to find out whether you need to set jumpers or switches.

Configuring After Placing the Card in Your Computer

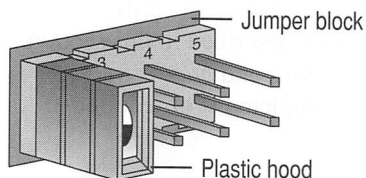
With MCA cards, most EISA cards, and some ISA cards, you configure the card by running a configuration program after you have placed the card in your computer. For instructions on configuring these cards, see “Software-Configured Cards” later in this appendix.

Using Jumpers and Switches to Configure a Network Card

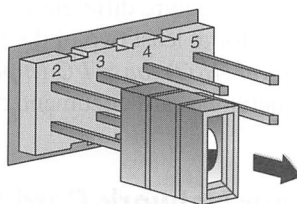
If your network card is configured manually (instead of by a configuration program), you need to set some options by using *jumper* and *DIP-switch* settings.

Changing Jumper Settings

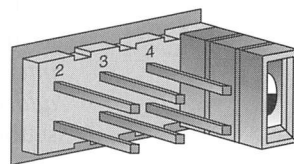
To change a jumper setting, remove the plastic hood that fits over the pins on the *jumper block*. Then place the hood on the pins as indicated in your network-card documentation. The following illustration shows the jumper setting being changed from position 2 to position 5 on a sample jumper block.



Jumper set to position 2



Hood being removed



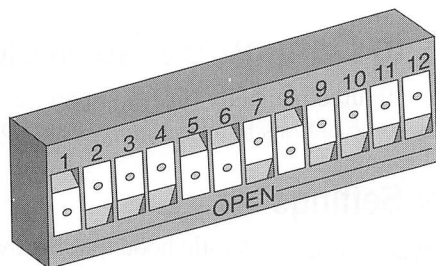
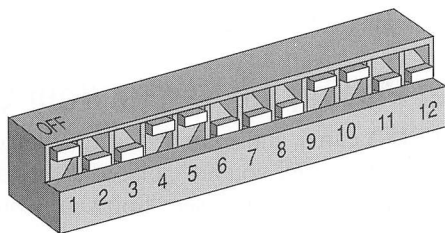
Jumper reset to position 5

Changing DIP-Switch Settings

DIP switches resemble miniature light switches, and work in much the same way. To reset DIP-switch settings on your network card, you move the switches to the alternate position (On/Off or Open/Closed), according to the settings indicated in your network-card documentation.

Tip You can use the tip of a pen to change your DIP-switch settings more easily.

The following illustration shows two common types of DIP switches.



How to Determine Which Configuration Settings to Use

Different network cards require different types of settings. For most cards, you need to assign values for at least two of the three settings described in this section: *interrupt request level (IRQ)*, *base I/O (input/output) port*, and *base memory address*. See your network-card documentation for a complete list of required settings.

Recording Your Network-Card Settings

The following table shows some common settings for certain hardware. Use it to record the settings you use for configuring your network card. If you know the settings for your other hardware, it may be useful to list that information before configuring your network card. This will help you avoid using the same values for more than one device. The documentation that came with your computer and other devices may list these settings.

Note Keep this table available for use when you set up the Windows for Workgroups software, after you install the network card.

Hardware	IRQ	Base I/O port	Base memory address
Serial port (COM1, COM3)	4	3F8	
Second serial port (COM2, COM4)	3	2F8	
Floppy disk controller	6	3F0	
Hard disk controller	14	1F0	
LPT1	7	378	
LPT2	5	278	
Bus mouse	3, 4, or 12	230	
Modem			
Sound card			
Network card			

Note Some hardware does not have entries for the base memory address.

Interrupt Request Level (IRQ)

When your network card sends a request to your computer's central processing unit (CPU), it uses an electronic signal called an *interrupt*. Each device in your system must use a different *interrupt request level (IRQ)*, which is specified when the device is configured. (*Interrupt* is often used interchangeably with *IRQ*.)

In most cases, you can use IRQ5, IRQ10, IRQ11, or IRQ15 for your network card. Check the documentation that came with your computer and other devices to determine if these interrupt levels are already being used.

If neither IRQ5, 10, 11, nor 15 is available, refer to the following table for alternative values you may be able to use. The interrupt levels listed as "available" usually can be used for your network card. If your computer does not have the hardware listed for a specific IRQ, that IRQ should also be available.

IRQ	Personal computer with 386SX processor (or higher)
2 (9)	Do not use (reserved for EGA/VGA adapter).
3	Usually not available (reserved for COM2 or COM4, unless only one serial port is installed; sometimes used for bus mouse).
4	Do not use (reserved for COM1 or COM3).
5	Available (unless used for second parallel port [LPT2] or bus mouse).
6	Do not use (reserved for floppy disk controller).
7	Do not use (reserved for parallel port [LPT1]).
8	Do not use (reserved for real-time clock).
10	Available.
11	Usually available (unless used for SCSI adapter).
12	Usually available (unless used for PS/2-style mouse).
13	Do not use (reserved for math coprocessor).
14	Do not use (reserved for hard disk controller).
15	Available.

Base I/O Port

The *base I/O (input/output) port* specifies a channel through which information is transferred between your hardware, such as your network card, and your computer's CPU. The port appears to the CPU as an address.

Each hardware device included in your system must have a different base I/O port number. The port numbers (in hexadecimal format) in the following table are usually available for you to assign to your network card. Addresses with a device listed next to them are commonly used for the devices. Check the documentation that came with your computer and other devices to determine which addresses are already in use.

Port	Device	Port	Device
200 to 20F	Game port	300 to 30F	Some disk controllers
210 to 21F		310 to 31F	
220 to 22F		320 to 32F	Hard disk controller (PS/2 Model 30 only)
230 to 23F	Bus mouse	330 to 33F	SCSI controllers
240 to 24F		340 to 34F	
250 to 25F		350 to 35F	
260 to 26F		360 to 36F	
270 to 27F	LPT2 (LPT3 in MCA-type computers)	370 to 37F	LPT1 (LPT2 in MCA-type computers)
280 to 28F		380 to 38F	

Port	Device	Port	Device
290 to 29F		390 to 39F	
2A0 to 2AF		3A0 to 3AF	
2B0 to 2BF		3B0 to 3BF	LPT1 (MCA-type computers only)
2C0 to 2CF		3C0 to 3CF	EGA/VGA
2D0 to 2DF		3D0 to 3DF	CGA (also EGA/VGA, in color video modes)
2E0 to 2EF	COM4	3E0 to 3EF	COM3
2F0 to 2FF	COM2	3F0 to 3FF	Floppy disk controller; COM1

Base Memory Address

The *base memory address* defines the address of the location in your computer's memory (RAM) that the network card will use to exchange information between your computer and the other computers you are connected to. This setting is sometimes called the *RAM start address*. Often, the base memory address for your network card is D0000. (For some network cards, the final "0" is dropped from the address—for example, D000.)

Note Some network cards do not have a setting for the base memory address, because they do not use any RAM.

With some network cards, you may also need a setting that specifies the amount of memory to be "mapped" or set aside for this purpose. For example, for some cards you can specify either 16K, which leaves more memory available for other uses, or 32K, which gives better performance but leaves less memory available.

Note If you are using EMM386, you need to exclude the base memory address area by using the **x=** parameter on the **device=emm386** line in your CONFIG.SYS file. For example, if your network card uses the address C800, the **device=emm386** line in your CONFIG.SYS file would look like this:

device=emm386.exe x=c800-ceff

For more information, see your Windows or Windows for Workgroups user's guide. If you use 386Max™, QEMM™, or another expanded-memory provider, see the documentation that comes with it to see whether you need to exclude this area.

If you are not using an expanded-memory provider and have a network card that requires a base memory address, you can exclude the base memory address by using the **EMMExclude=** line in the [386Enh] section of your SYSTEM.INI file. For example, if your network card uses the address C800, add the following line to the [386Enh] section of your SYSTEM.INI file:

EMMExclude=c800-ceff

Additional Settings

Your network card may have other settings you need to define during configuration. For example, some cards have more than one *connector* (where you connect the cable), providing you with flexibility in choosing a cable. If your card has multiple connectors, you typically need to specify which connector to use. This can be done by using a jumper or a software setting. See your network-card documentation for details about this and other settings.

3. Installing the Network Card

This section describes how to place the network card in your computer.

Before You Insert the Card

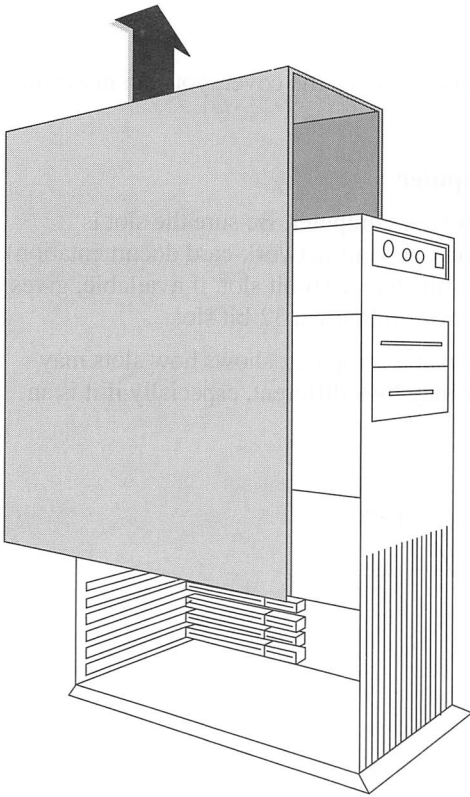
Before placing the network card in your computer, carry out the following steps.

Warning Always turn off and unplug your computer before you remove the cover.

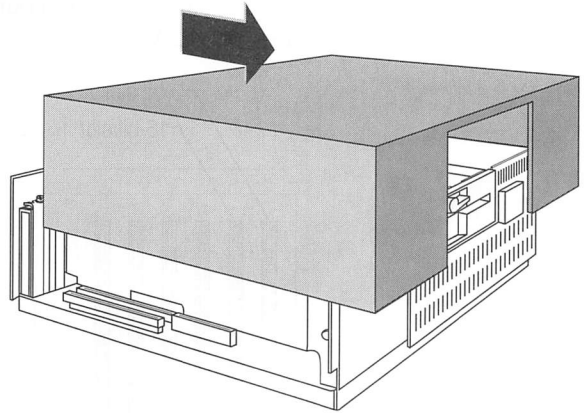
► **To get ready to place the card in your computer**

1. Quit Windows and all running applications.
2. Turn off the power and unplug all power cords.
3. Remove the cover from your computer's system unit.

The screws holding the cover in place are typically located at the back and/or sides of the computer. Generally, there are only three or four screws to remove. The cover may slide forward or back, or it may lift up.



Tower-style computer



Desktop-style computer

4. If your network card requires you to change jumper or DIP-switch settings, change these settings before placing the card in your computer. (If you don't know whether this is required, just continue installing.)

For information about jumper or DIP-switch settings, see “How to Determine Which Configuration Settings to Use” earlier in this appendix.

Note Before touching the card, be sure to discharge static electricity from your hands by touching a grounded metal surface, such as the screw on an electrical outlet's plate cover.

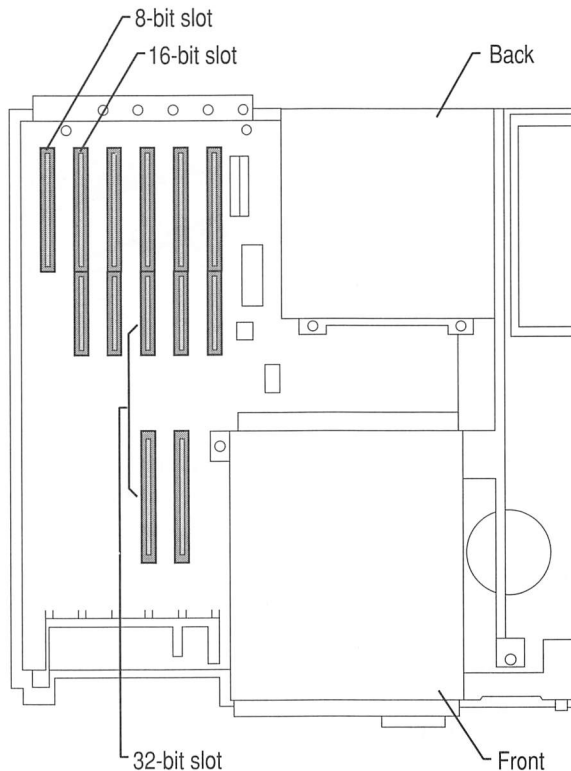
Placing the Card in Your Computer

After you have turned off your computer and removed the cover, you can insert the network card.

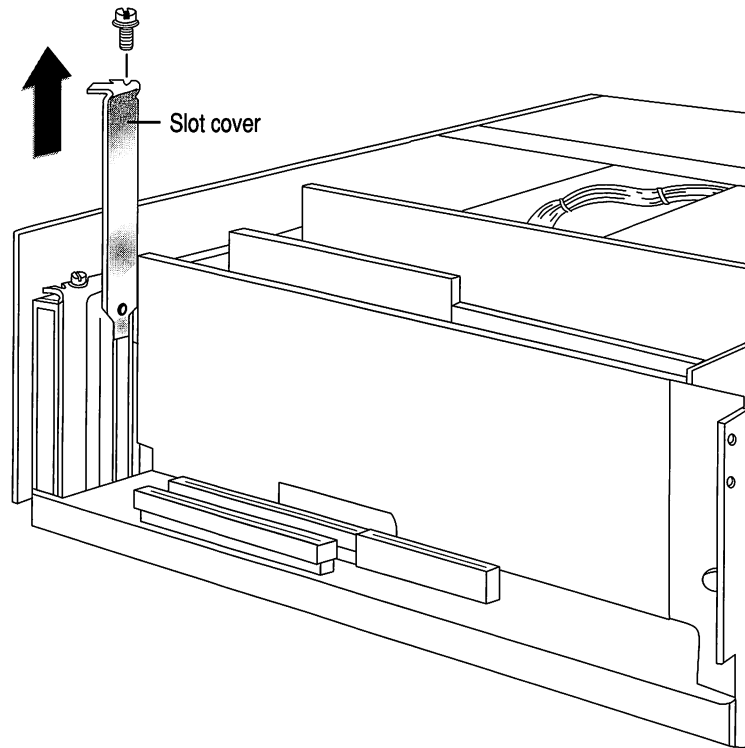
► **To place the network card in your computer**

1. Locate an unused bus expansion slot in your computer. Be sure the slot is appropriate for the card (for information, see your network-card documentation). ISA cards can use either an 8-bit or 16-bit slot. A 16-bit slot, if available, gives better performance. EISA and MCA cards often use a 32-bit slot.

The following illustration, looking down at a computer, shows how slots may look in your computer. Your computer may look different, especially if it is an EISA or MCA type.

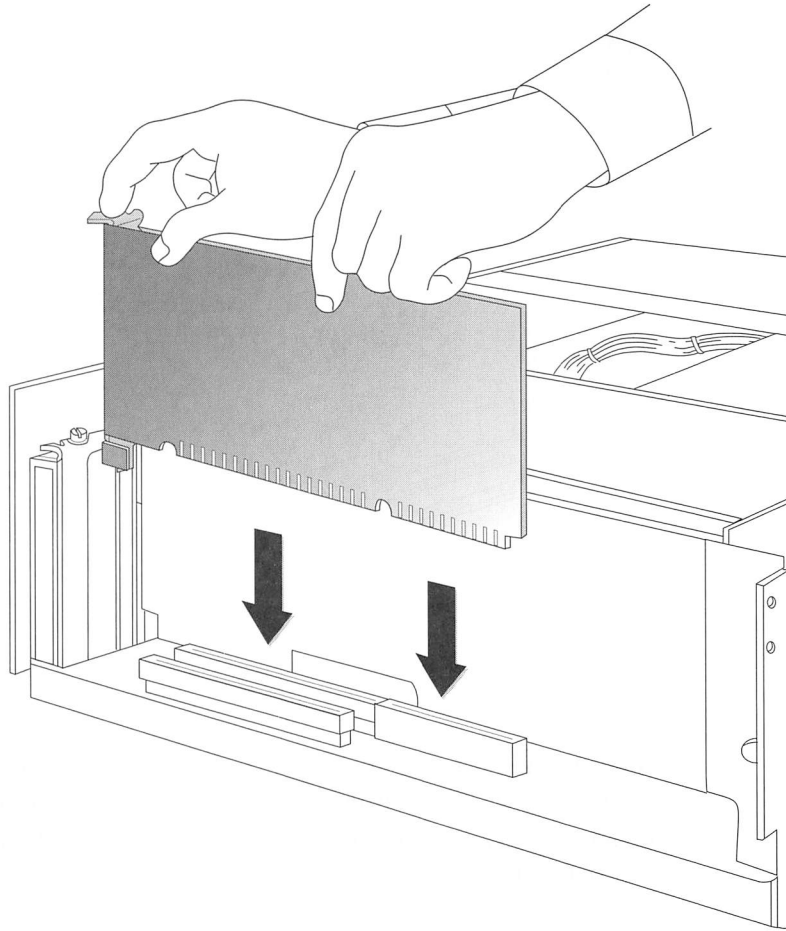


2. Remove the cover from the slot, and save the screw for use in step 7.



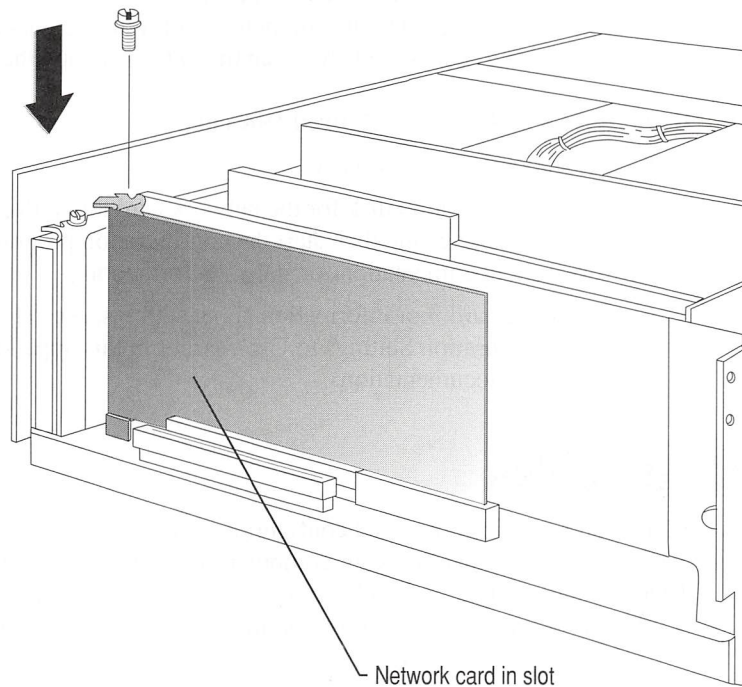
3. Discharge any static electricity from your hands by touching a grounded metal surface, such as the screw on the plate cover of an electrical outlet.
4. Remove the network card from its protective wrapper. Be careful not to touch the gold contacts at the bottom of the card.

5. Align the bottom of the card (gold contacts) with the slot, and press the card firmly into the socket. When correctly installed, the card locks into place.



6. Make sure that the top of the card is level (not slanted) and that the hole on top of the card's metal bracket lines up with the screw hole at the back of the slot.

7. Anchor the card in place using the screw you removed in step 2.



8. Replace the computer cover and screws.
9. Reconnect any cables and power cords you disconnected or unplugged.

Software-Configured Cards

If your network card is configured by using a configuration program (as are MCA, most EISA, and some ISA cards), follow these steps after placing the network card in your computer. (See your network-card packaging or documentation if you are unsure which type of card you have.)

► If you have a software-configured EISA card or an MCA card

1. Insert your computer's configuration disk into the startup (boot) floppy disk drive, and then restart (reboot) your computer.
2. When a message appears, saying your computer doesn't recognize your network card, replace the computer's configuration disk with the configuration disk for your network card, and then start the configuration program. (See your network-card documentation for startup information.)
3. Configure your network card. For information about settings, see "How to Determine Which Configuration Settings to Use" earlier in this appendix, or see your network-card documentation.

4. Remove your network card's configuration disk, and insert your computer's configuration disk. With some EISA cards, the card's configuration information is automatically copied to the computer's configuration disk. For other EISA cards, and MCA cards, you are given the option to copy the information.

► **If you have a software-configured ISA card**

1. Restart (reboot) your computer.
2. Insert the configuration disk for the network card into a floppy disk drive, change to that drive, and then start the configuration program. (See your network-card documentation for startup information.)
3. Configure the card. For information about settings, see "How to Determine Which Configuration Settings to Use" earlier in this appendix, or see your network-card documentation.

4. Connecting Cables

When you finish installing and configuring your network card, the next step is to connect the cables that link your computer to the other computers on your network. There are several types of cable/computer configurations available. The sections that follow describe the four most common types: thin Ethernet, thick Ethernet, twisted-pair, and token ring.

To connect your computer to the network, carry out the following steps:

1. Determine which of the four types of systems you are connecting to, and turn to the appropriate following section that describes that system.
2. Using the illustrations and descriptions to identify your cable hardware, connect your network card to the other computers on your network. For more information about your system, see your network-card documentation.

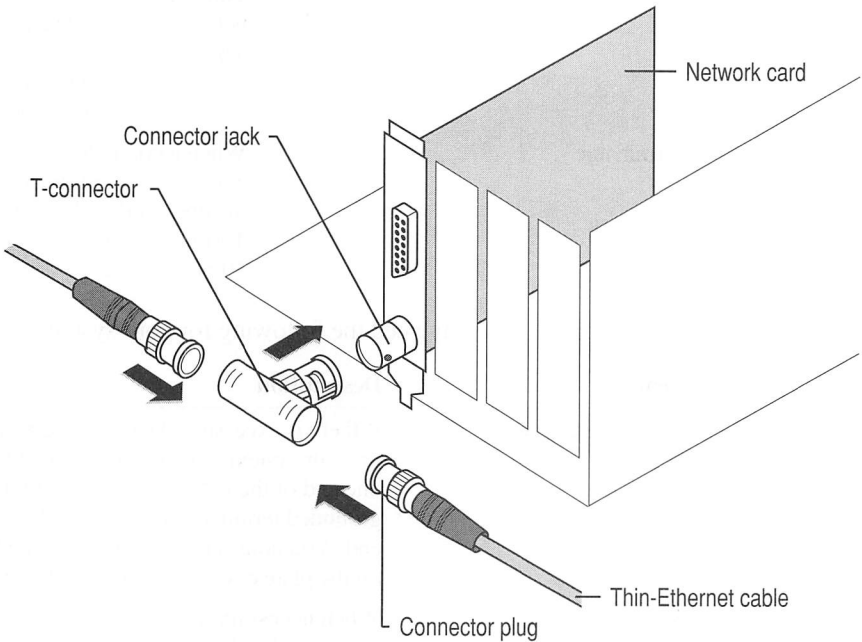
Note If you have a type of cable/computer configuration other than the four listed here, see your network-card documentation for more information.

When you finish connecting, see Chapter 2, "Setting Up and Starting Windows for Workgroups," to finish setting up your system. If you have already set up Windows for Workgroups, see Appendix D, "Configuring Network-Adapter Drivers."

Thin Ethernet

A thin-Ethernet system, also known as “Thinnet,” has the advantages of using less expensive cable than a thick-Ethernet system (described in the next section) and using hardware that is somewhat easier to set up.

Use the following illustrations as a guide to connecting the network card in your computer to a thin-Ethernet system.



The following table describes the hardware components.

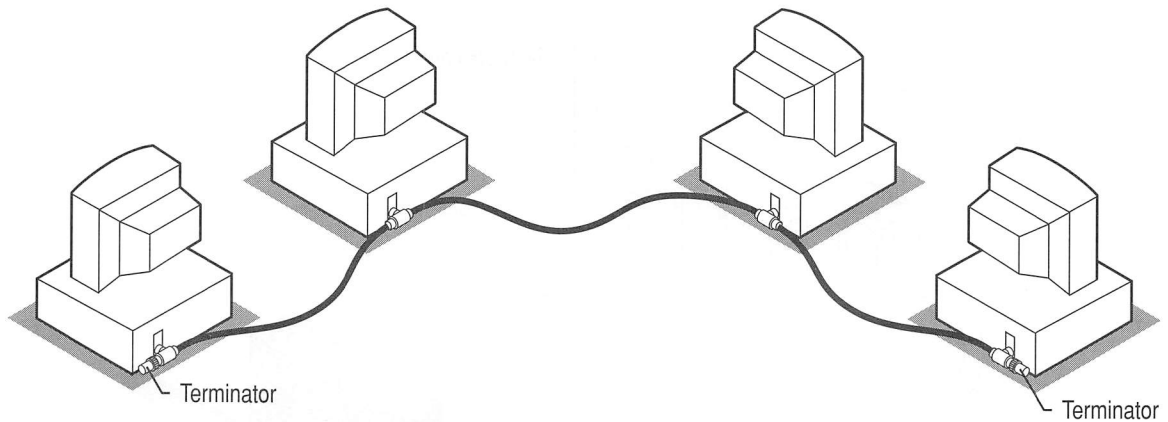
Item	Description
Network card with connector jack	The BNC connector jack on the back of your network card connects the card to a T-connector.
BNC T-connector	The T-connector connects to the network-card connector jack. Thin-Ethernet cables are connected to the jacks on either end of the “T.” (For computers at the ends of the network, a terminator replaces one of the cable connections.)

Item	Description
Thin-Ethernet cable with BNC connector plugs	Thin coaxial cable (RG-58), for networks that use the 10Base2 or 802.3 standard (as defined by the Institute of Electrical and Electronics Engineers, or IEEE). Connector plugs are located at both ends of a thin-Ethernet cable.
Terminator	Thin-Ethernet cable can be used in segments of between 0.5 and 185 meters long, and can have a maximum of 30 computers connected to it. A cable segment generally is made up of several smaller lengths of cable joined by connectors. When a computer is the last in a group of computers, a terminator must be connected to the open end of the computer's T-connector. Terminators used with RG-58 cable must be 50 ohm (50 Ω).

In some cases, you may need the following for your system.

Item	Description
Grounded terminator	If there is excessive electromagnetic interference, or "noise," on your system, you may need to replace the terminator at one end of the network with a grounded terminator. The grounded terminator has a grounding wire connected to one end. You connect the wire to a ground (such as the screw on the plate cover of an electrical outlet).
Barrel connector	When necessary, a barrel connector can be used to join two pieces of thin-Ethernet cable. Keeping the number of barrel connections on a network to a minimum increases network reliability. Do not use T-connectors in place of barrel connectors.

When you finish installing the network card and connecting the cable, your thin-Ethernet system should be set up as illustrated.



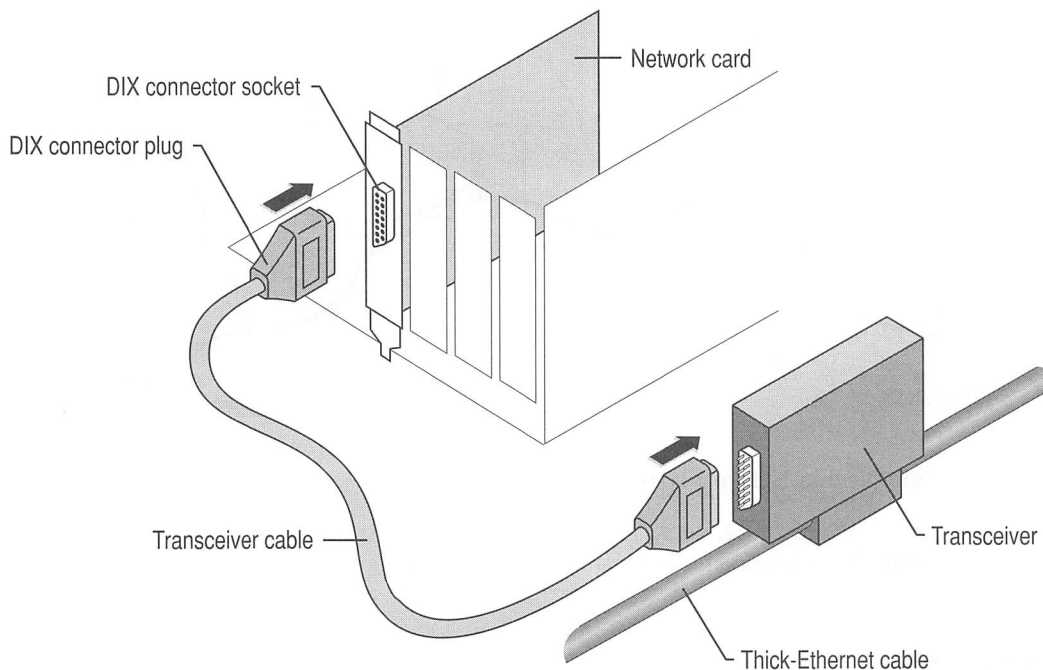
Sample thin-Ethernet system

Note Terminators must be connected to both endpoints.

Thick Ethernet

A thick-Ethernet (also known as “Thicknet”) system is named for the standard, or thick, Ethernet cable used. With thick cable, you can have more computers on a system and the distance between computers can be greater; however, the cable is more expensive and more difficult to install than thin-Ethernet cable.

Use the following illustrations as a guide to connecting the network card in your computer to a thick-Ethernet system.



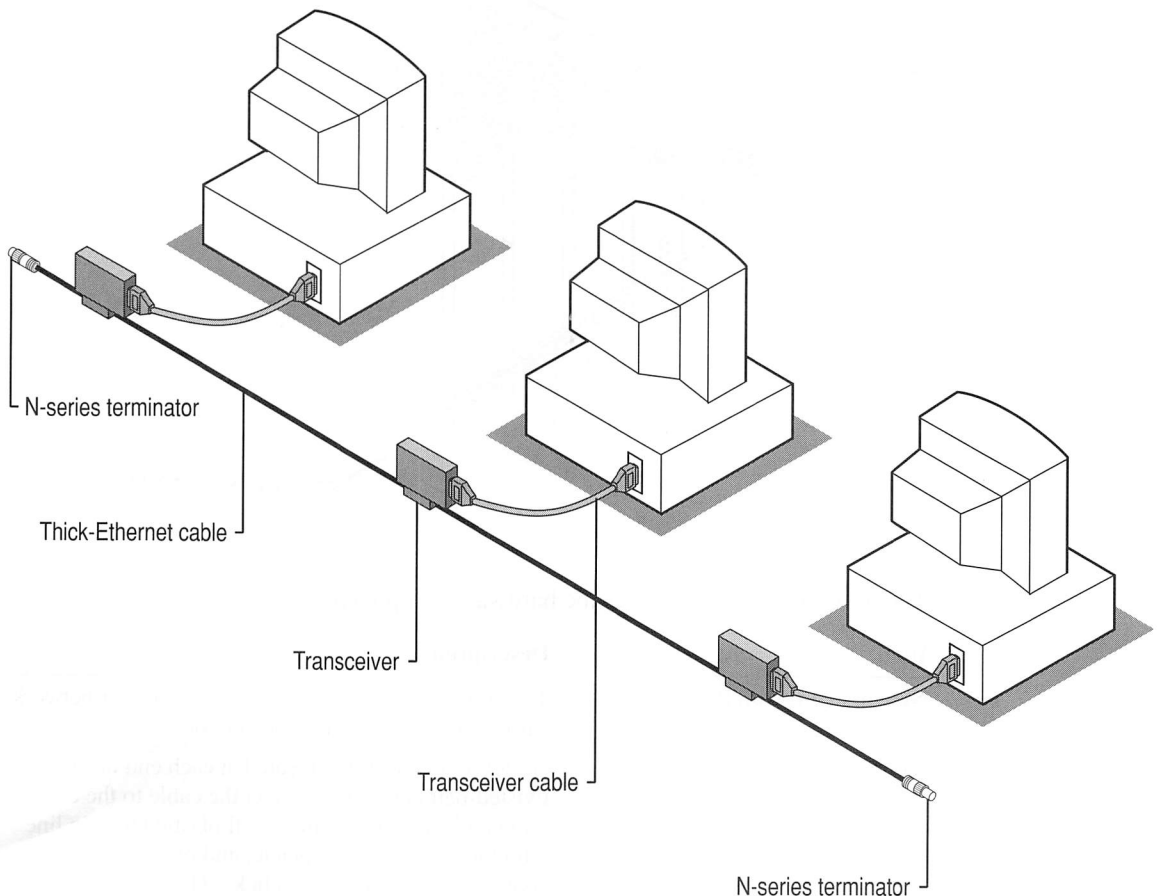
The following table describes the hardware components.

Item	Description
Network card with DIX connector socket	The connector socket on the back of your network card connects the card to the transceiver cable.
Transceiver cable with DIX connector plug and connector socket	<p>A transceiver cable connects your computer to a transceiver on a thick-Ethernet system.</p> <p>A connector plug is located on one end of a transceiver cable. It connects to the network card.</p> <p>A connector socket is located at the other end of a transceiver cable. It connects the cable to a transceiver.</p> <p>Maximum length for a transceiver cable is 50 meters.</p>
Transceiver	A transceiver connects your computer to a thick-Ethernet network. (For systems having many computers, the transceivers are usually located inside office walls.)
Thick-Ethernet cable	Also known as "standard" or simply "thick" cable. This is coaxial cable. The maximum segment length is 500 meters and the maximum number of transceivers is 100.
Terminator	A terminator (N-series) must be connected to the thick-Ethernet cable at each endpoint of the network.

In some cases, you may need the following for your system.

Item	Description
Grounded terminator	If there is excessive electromagnetic interference, or “noise,” on your system, you may need to replace the terminator at one end of the network with a grounded terminator (N-series). The grounded terminator has a grounding wire connected to one end. You connect the wire to a ground (such as the screw on the plate cover of an electrical outlet).

When you finish installing the network card and connecting the cable, your system should be set up as illustrated.



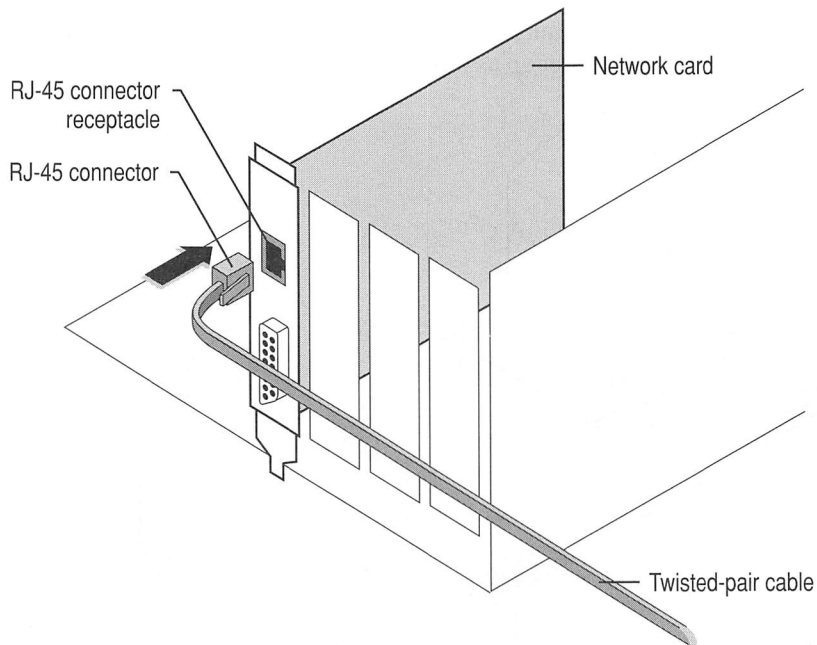
Sample thick-Ethernet system

Note Terminators must be connected to both endpoints.

Twisted-Pair Ethernet

The advantages of a twisted-pair Ethernet system are that the cable is generally less expensive than systems such as thick-Ethernet, and that the cable is relatively easy to install.

Use the following illustrations as a guide to connecting the network card in your computer to a twisted-pair Ethernet system.

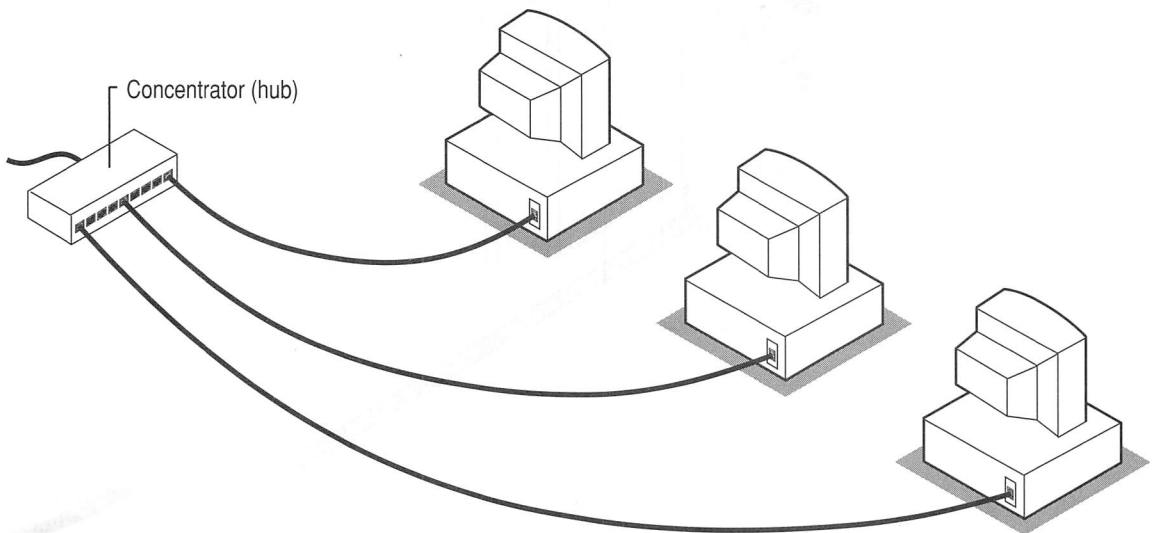


The following table describes the hardware components.

Item	Description
Network card with RJ-45 connector receptacle	The connector receptacle on the back of your network card connects the card to the network cable.
RJ-45 connector	An RJ-45 connector is located at each end of the twisted-pair cable. To connect the cable to the card, align the connector so the small plastic tab is in line with the slot in the receptacle, and push in the connector until you hear a click. (The connector is similar to the plastic plug used to connect a telephone cord to a wall outlet.)

Item	Description
Twisted-pair Ethernet cable	<p>Cable for a twisted-pair Ethernet system can be either unshielded twisted-pair (UTP) or shielded twisted-pair (STP). (UTP is shown in the preceding illustration.) Both types of cable consist of two or more pairs of twisted copper wires; however, STP has a shielding layer of foil and copper braid around the inner cable that protects the wiring from electromagnetic interference, or "noise."</p> <p>Maximum cable length is 100 meters.</p>
Concentrator (hub)	<p>The computers on a twisted-pair system are connected to each other by using a concentrator, or hub. Cable from each computer is plugged into a socket (connector receptacle) in the hub.</p> <p>Each hub is a full 802.3 multiport repeater, compatible with the IEEE 802.3 10BaseT standard for connecting to UTP wiring.</p>

When you finish installing the network card and connecting the cable, your system should be set up as illustrated.



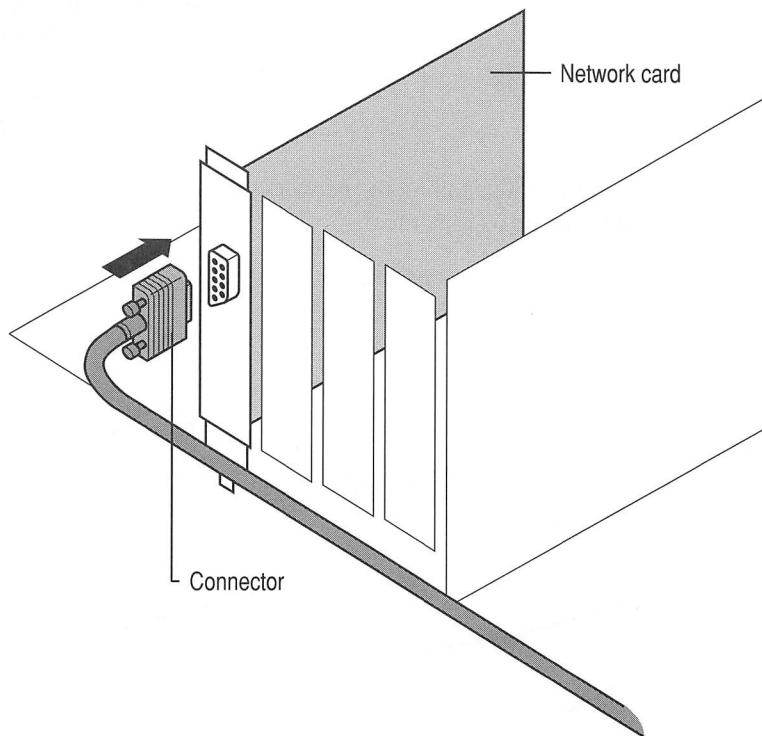
Sample twisted-pair Ethernet system

Token Ring

One advantage of a token-ring system is *redundancy*: One piece of the system can fail or the cable can be cut, and the signal will backtrack but still function. Also, token ring is supported by IBM mainframe software, which can be an advantage in some situations.

Disadvantages are that token-ring cable is generally more expensive and more complex than with other systems. (If you use twisted-pair cabling, it requires four wires.) In addition, troubleshooting is sometimes more difficult.

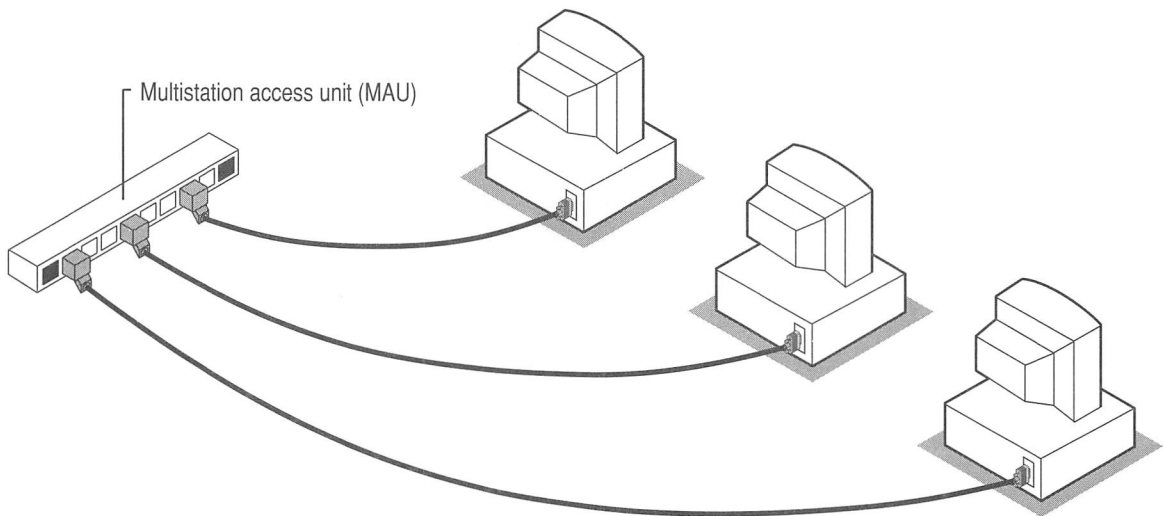
Use the following illustrations as a guide to connecting the network card in your computer to a token-ring system.



The following table describes the hardware components.

Item	Description
Network card	You need a network card compatible with a token-ring system.
Cable	A token-ring system generally uses either type 1, which is heavy copper cable, or type 3, which is unshielded twisted-pair (UTP) cable.
Multistation access unit (MAU)	A device that is the meeting point of the wires in a token-ring system. Cables run from the MAU to link computers to the network.

When you finish installing the network card and connecting the cable, your system should be set up as illustrated.



Sample token-ring system

The Next Step

Now that you have finished installing your network card and connecting the cables that link you to the other computers on your system, go to Chapter 2, “Setting Up and Starting Windows for Workgroups,” to finish setting up your system. If you have already set up Windows for Workgroups, see Appendix D, “Configuring Network-Adapter Drivers.”

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A P P E N D I X D

Configuring Network-Adapter Drivers

After you install a network adapter, or card, you also need to install and configure its driver. This appendix describes how to install, configure, and remove network-adapter drivers and change settings for them.

When you set up the Microsoft® Windows™ for Workgroups version 3.11 operating system, your network-adapter driver is installed and configured. You need to use the instructions in this appendix only if you have added or changed your network adapter after setting up Windows for Workgroups.

For information about installing a network adapter, see Appendix C, “Installing Network Hardware.”

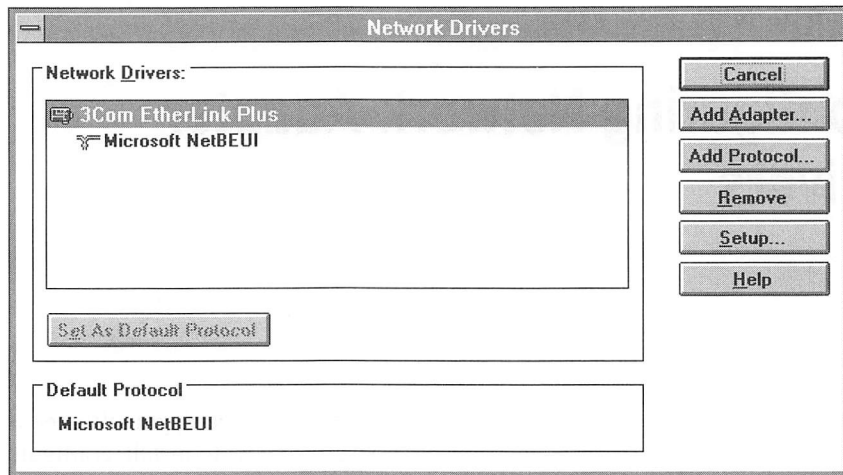
Installing a Network-Adapter Driver

You can install and configure a network-adapter driver by using Windows Setup.

► **To install and configure a network-adapter driver**

1. In the Network group, choose the Network Setup icon.
2. In the Network Setup dialog box, choose Drivers.

The Network Drivers dialog box appears, as illustrated on the following page.



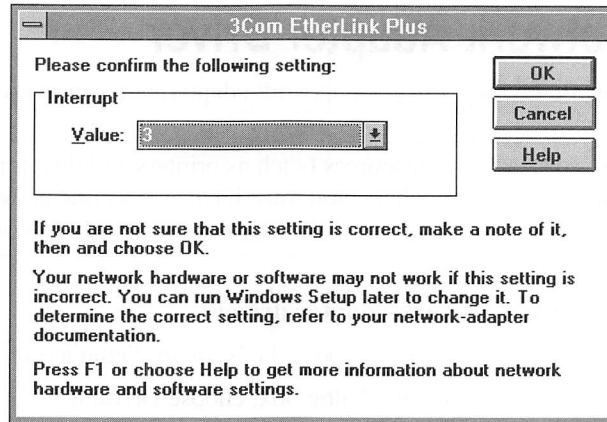
3. In the Network Drivers dialog box, choose Add Adapter.
4. In the list of network adapters, select the one you want to add, and then choose OK. (If your adapter is not listed, select Unlisted Or Updated Network Adapter.) Or choose Detect to have your network adapter detected automatically.
5. Insert the requested disk in drive A. Then choose OK. If you selected Unlisted Or Updated Network Adapter, the disk must contain an OEMSETUP.INF file for the network adapter.

Or type the drive letter and directory name (for example, **d:\drivers**) where the driver is located, and then choose OK.

(You can also use the Browse button to locate and select the drive and directory where the driver is located. When you finish using the Browse dialog box, choose OK.)

If you selected Unlisted Or Updated Network Adapter, another dialog box appears, listing the drivers on the disk. Select the driver you want to install, and then choose OK.

6. If the network-adapter driver requires additional settings, a dialog box appears, displaying the default (preset) settings for your network adapter.



If the settings your network adapter uses differ from the default settings, specify the correct interrupt (IRQ), base I/O port, and base memory address in the dialog box, and then choose OK. For a description of these settings, see Appendix C, “Installing Network Hardware.” In most cases, the default values will work correctly.

A few network adapters may require that you set advanced options. For example, if you are using a 3Com® adapter, you may need to specify the DMA channel the adapter uses. In other cases, you may also need to know the transceiver type the adapter uses. In such cases, the dialog box will contain an Advanced button. Choose it, and then, in the Advanced dialog box, specify the values for each setting. When you finish, choose OK.

For more information about the settings your adapter uses, see your network-adapter documentation. For help on the Advanced dialog box, choose the Help button or press F1 while using the dialog box.

Note Make sure that the settings for your network adapter do not conflict with other devices installed in your system, such as a mouse or a sound card. See the documentation for your devices, including your network adapter, for information about their settings.

7. In the network-adapter settings dialog box, choose OK.
8. In the Network Drivers dialog box, choose Close.
9. In the Network Setup dialog box, choose OK. A dialog box appears, prompting you to restart your computer. If you have saved your files, you can safely restart.
10. Choose the Restart Computer button to restart.

Removing a Network-Adapter Driver

If you are no longer using a network adapter, you can remove its driver.

Note To share your resources (such as printers and directories) and connect to resources shared by others, you must have at least one network-adapter driver installed. If you try to remove all network-adapter drivers, a message appears.

► **To remove a network-adapter driver**

1. In the Network group, choose the Network Setup icon.
2. In the Network Setup dialog box, choose Drivers.
3. In the Network Drivers dialog box, select the network adapter you want to remove, and then choose Remove.
4. Choose Close.
5. In the Network Setup dialog box, choose OK. A dialog box appears, prompting you to restart your computer. If you have saved your files, you can safely restart.
6. Choose the Restart Computer button to restart.

When you remove the driver, the driver file is not deleted from your hard disk. You can add the driver again if you decide to use your network adapter later.

Changing Protocols and Network-Adapter Settings

You can change settings for your network adapter.

► **To change settings for your network adapter**

1. In the Network group, choose the Network Setup icon.
2. In the Network Setup dialog box, choose Drivers.
3. In the Network Drivers dialog box, choose Setup.

Note A few network adapters require that you specify the size of certain buffers and the kind of cable the adapter uses, such as thin- or thick-Ethernet cable. To specify such advanced options, choose the Advanced button in the network-adapter settings dialog box.

You may also need to change the *protocols* for your network adapter. A protocol is a set of rules and conventions for exchanging data. Because there are many types of protocols, computers on a network must all use the same protocol to be able to share information. A network adapter can use up to four protocols.

When you set up Windows for Workgroups, the NetBEUI protocol is installed and configured. This protocol and its default settings work in most cases, so you rarely need to change the settings or use an additional protocol. (If your computer has more than 6 megabytes of RAM, the IPX protocol is also installed.) If you do need to add other protocols, choose Add Protocol in the Network Drivers dialog box. You can use up to eight protocols. However, each network adapter can support only four. If you use more than four protocols, you must install another network adapter.

For more information about adding protocols, changing protocol settings, or specifying advanced options for your network adapter, see Help for Windows Setup.

A P P E N D I X E

Troubleshooting

This appendix is designed to help if you encounter problems when using the Microsoft® Windows™ for Workgroups version 3.11 operating system. The following sections outline steps you can take to solve the most common problems:

- Setting Up Windows for Workgroups
- Using the Network Features of Windows for Workgroups
- Using the Microsoft Windows Network
- Using Novell® NetWare®
- Setting Up a Network Card
- Using Microsoft Network Diagnostics
- Using Mail
- Using Microsoft At Work™ PC Fax
- Streamlining Your CONFIG.SYS and AUTOEXEC.BAT Files
- Microsoft Support Services

Setting Up Windows for Workgroups

The following sections describe possible solutions to problems you might have when setting up Windows for Workgroups.

Your system locks up during the MS-DOS part of Setup.

The first part of the Setup program runs in MS-DOS®. (Later, Setup switches to Windows mode.) If Setup stops while in MS-DOS mode, it may be because your hardware could not be correctly detected. To solve this problem, type **setup /i**, which skips hardware detection and runs Custom Setup. In the System Information screen, be sure to select descriptions that match the hardware on your system. Then restart your computer, and type **win** at the command prompt to start Windows.

Windows won't start after a successful Setup.

If you completed Setup but cannot start Windows for Workgroups, one of the following might be the cause:

- The wrong hardware may be specified for your system. This might occur because you ran Express Setup and your hardware was not correctly detected, or because you specified the wrong hardware settings during Custom Setup. In your Windows directory, type **setup** at the command prompt. Make sure the hardware information is correct in the System Information screen.
- Make sure that your computer has at least a 386SX processor. You should have at least 410K of free conventional memory and 3072K (3 MB) of free extended (XMS) memory. You should also have at least 3.5 MB of free disk space if you are upgrading from a previous version of Windows, and 9.5 MB if you are setting up Windows for Workgroups for the first time. Although you can force Windows to run if it has less than 3072K of free XMS memory, it is not recommended, because Windows may run very slowly.
- Your system may be running memory-resident (TSR) programs that are incompatible with Windows and that could not be detected during setup.

To check for this possibility, create a "clean boot" floppy disk that contains only the files necessary to start your computer and Windows. Insert this disk in drive A, and then restart your computer. For more information about troubleshooting problems with memory-resident programs, see "Streamlining the CONFIG.SYS and AUTOEXEC.BAT Files" later in this appendix.

- If you are using a thin-Ethernet network, make sure you have attached a BNC-style T-connector to the back of your network card. Also, make sure you have attached a terminator to each end of the network. For more information, see Appendix C, "Installing Network Hardware."

If Windows still won't start, try the following guidelines:

- To see whether the problem has to do with networking, type **win /n** to start Windows without starting the network. If this command successfully starts Windows, then contact your network administrator.
- Type **win /b** to start Windows. This creates a file, BOOTLOG.TXT, that records system messages generated during system startup. By using the MS-DOS **type** command, you can view this file to see where in the startup process Windows failed. If you have MS-DOS version 5.0 or later, you can also use the **edit** command.
- Use the **EMMExclude** option when you start Windows, by typing **win /d:x** at the command prompt. This excludes the network-adaptor area from areas that Windows searches for unused address space. Typically, this is the area A000-FFFF. The search can cause conflicts with adaptors that use this area.

If using this command successfully starts Windows, you might want to add the **EMMExclude** command to your SYSTEM.INI file, as described in the procedure following this list.

If you are loading an expanded-memory provider such as EMM386, QEMM™, or 386Max™ in the CONFIG.SYS file, any **EMMExclude** commands in the SYSTEM.INI file are ignored. Your computer uses the settings given in the CONFIG.SYS file instead.

For more information, see the documentation supplied with your memory provider.

- Use the **VirtualHDirq** option when you start Windows, by typing **win /d:v** at the command prompt. This gives your hard disk—rather than Windows—control over how hard-disk interrupts are processed.

If using this command successfully starts Windows, you might want to add the **VirtualHDirq=False** command to your SYSTEM.INI file, as described in the following procedure.

► **To add an EMMExclude or VirtualHDirq command to SYSTEM.INI**

1. Using a text editor, open the SYSTEM.INI file, located in your Windows directory.
2. In the [386Enh] section of the file, type one of the following lines:
EMMExclude=A000-FFFF
VirtualHDirq=False
3. Save your changes to the SYSTEM.INI file.
4. At the command prompt, type **win** to start Windows.

Note When you add the **EMMExclude** command to your SYSTEM.INI file, you are probably excluding more address space than is necessary. To find out a more precise amount of address space to exclude, you can use the Microsoft Diagnostics (MSD) program. To start MSD, quit Windows, and then type **msd** at the command prompt. Then, in the main screen, choose Memory. You should exclude any address space identified as “RAM” or “ROM.” You might also need to exclude address space identified as “Possibly Available.”

If Windows still won't start, run Setup again from the disks by using the following guidelines:

- Type **setup /i**. In the System Information screen, be sure to select descriptions that match the hardware on your system. After setup, restart your computer, and type **win** at the command prompt to start Windows.

Using the Network Features of Windows for Workgroups

The following sections describe possible solutions to problems you might have when using the network features of Windows for Workgroups.

No network features of Windows for Workgroups are available.

If during startup you receive a message that you will not have any of the network features, try the following:

- Make sure your computer meets the processor, memory, and hard-disk requirements of Windows for Workgroups. For more information, see the “What Is Microsoft Workgroup Add-on?” chapter of this book.
- Make sure you have properly installed the network card in your computer and that you have specified the correct settings. For more information about installing a network card, see Appendix C, “Installing Network Hardware.” For information about specifying settings for a network card, see Appendix D, “Configuring Network-Adapter Drivers.”
- Make sure the cables that connect your computer to the network are connected properly.
- Quit Windows, and change to the Windows directory. Type **chkdsk** at the command prompt. If chkdsk shows errors, type **chkdsk /f** to repair the errors. Or run a disk utility to repair the files on the hard disk. If there is data corruption in the Windows directory, you may need to reinstall Windows for Workgroups.
- Restart your computer, and watch the screen as the CONFIG.SYS and AUTOEXEC.BAT files are processed. Make sure no error messages occur during the processing.
- Install the network card in another slot in your computer. For more information about installing a network card, see Appendix C, “Installing Network Hardware.” If it works, then the slot it was originally in does not work properly. Otherwise, the network card may be defective.

Using the Microsoft Windows Network

The following sections describe possible solutions for problems you might have when using Windows for Workgroups with the Microsoft Windows Network.

You forget your logon password for the Microsoft Windows Network.

If you forget your logon password, you can delete the file that records the password. You can create a new password list the next time you start Windows for Workgroups.

► **To create a new password list**

1. Using a text editor, open the SYSTEM.INI file, located in your Windows directory.
2. In the [Password Lists] section, find the line that starts with your user name. It specifies a file with a .PWL extension.
3. In your Windows directory, delete the file that is specified in SYSTEM.INI.
4. Restart Windows. A dialog box appears, asking whether you want to create a new password list. If you choose Yes, it creates a new list. This list contains no passwords, so you will have to supply a password the next time you connect to a shared resource that requires one.

Other computers on the network are not listed.

If you open a Connect dialog box and computers on the network are not listed, make sure your network cables are properly connected. For more information about cable connections, see Appendix C, "Installing Network Hardware."

If the names of computers on the network still don't appear, make sure your computer is using the same protocol as the computers you are trying to connect to.

► **To determine which protocol you are using**

1. In the Main group, choose the Windows Setup icon.
2. From the Options menu, choose Change Network Settings.
3. In the Network Setup dialog box, choose Drivers. The Network Drivers dialog box appears, displaying your current settings.

If you are using the correct protocol but are still having problems, try the following:

- Make sure that the settings in your `PROTOCOL.INI` file are correct for your network configuration. You can use a text editor, such as Notepad, to view the file in Windows.
- Sometimes when a computer in your workgroup is turned off or restarted, the computer names don't appear. Wait a few minutes, and then try again.
- Even though a computer name may not be visible in the Connect dialog box, you may still be able to connect to it by doing the following: In the Path box, type the name of the computer you are looking for, preceded by two backslashes (for example: `\\computer`). Then choose Connect.
- If a computer is part of a workgroup that is not your own, the computer name may not be listed in the Connect dialog box. Be sure to select the workgroup name when you open the Connect dialog box.
- Make sure the computer you are trying to connect to is on, running Windows for Workgroups, connected to the network, and set up to share files.
- In the Main group, choose the Windows Setup icon, and then choose Change Network Settings from the Options menu. In the Network Setup dialog box, double-click the name of your network adapter. If there is an Advanced button in this dialog box, choose it to view the advanced settings. Make sure the advanced settings match your network hardware. For example, if you are using a 3Com® EtherLink II® or IITP (8- or 16-bit) network, make sure Transceiver Location is set to Onboard rather than External.

You cannot share directories on your CD-ROM drive.

If you are using a CD-ROM drive with Microsoft CD-ROM Extensions and you want to share directories on the drive, you need to use MSCDEX.EXE version 2.22 (included on your Setup disks), and specify `/s` on the MSCDEX line in your `AUTOEXEC.BAT` file.

If you are running Novell NetWare, the MSCDEX line must appear before the MSIPX and NETX lines in your `AUTOEXEC.BAT` file.

A LAN Manager server is not listed.

You can run the Microsoft Windows Network in addition to Microsoft LAN Manager. If your network has a server running LAN Manager, but that server is not listed in the Connect dialog box, check the following: At least one of the computers running Windows for Workgroups in your network must have as its workgroup name the same name as the primary domain of the server.

A Windows NT or LAN Manager server is listed, but you cannot connect to it.

If a Microsoft Windows NT or LAN Manager server is listed in the Connect dialog box, but you cannot connect to it, you might not have a valid account on the server. For more information about getting a valid account on the server, see your network administrator.

You need to connect to or share resources before starting Windows.

If you cannot use the network features of connecting to and sharing resources while running Windows for Workgroups, or you need to use the network features before starting Windows, you can start the network from MS-DOS.

► To start the network before starting Windows

1. At the command prompt, type **net start full**. Or, if you only need limited network functionality, type **net start basic**.

A message appears, asking whether you want to start the workstation.

2. Press the letter Y, and then press ENTER.

You can now run Microsoft Windows Network commands from MS-DOS.

Note If you use the **net start basic** command to start the network before starting Windows, you will have about 100K less memory to work with when you use MS-DOS Prompt within Windows. A message is displayed if you start Windows after starting the network.

For more information about using Microsoft Windows Network commands from MS-DOS, type **net help** at the command prompt.

Using Novell NetWare

The following sections describe possible solutions for problems you might have when using Novell NetWare with Windows for Workgroups.

You cannot connect to a Novell NetWare server.

If you cannot connect to a Novell NetWare server from within Windows for Workgroups, make sure you are logged on to a NetWare server before starting Windows. Also make sure that you have set up Windows for Workgroups to use Novell NetWare.

► **To see whether Windows for Workgroups is set up to use Novell NetWare**

1. In the Network group, choose the Network Setup icon.
2. If Windows for Workgroups is set up to use Novell NetWare, it should appear in the list of networks installed on your computer. If it does not, choose the Networks button next to the list. The Networks dialog box appears.

If you want to use the Microsoft Windows Network and Novell NetWare, select Install Microsoft Windows Network, select Other, and select Novell NetWare from the list.

If you want to use Novell only, select Install Windows Support For The Following Network Only, and then select the appropriate version of Novell NetWare from the list.

3. Choose OK.

Computers or NetWare servers are not listed.

If you are using Novell NetWare in addition to the Microsoft Windows Network, and NetWare servers are not listed in the Connect dialog box, make sure the Adapter Media Type setting matches your Novell NetWare software configuration. For information about this configuration, see your network administrator.

► **To check the Adapter Media Type setting**

1. In the Network group, choose the Network Setup icon.
2. In the Network Adapters And Protocols list, double-click the name of your network adapter. A dialog box appears.
3. Choose Advanced.
4. In the advanced settings dialog box, select Adapter Media Type.
5. When you are using Novell NetWare, the value of Adapter Media Type can be either Ethernet II or Ethernet_II (DIX). For troubleshooting purposes, select the value that is not currently selected, and then choose OK.

If you are using a token-ring network, you should also try removing ROUTE.COM from your AUTOEXEC.BAT file.

Setting Up a Network Card

The following section suggests possible solutions for problems you might have while installing and configuring your network card.

You're trying to install a network card.

If you encounter problems while installing and configuring a network card, or while connecting to cables, you can try the following:

- Make sure that all connections (cables and connectors) are securely attached and that the network card is securely in the slot, as shown in Appendix C, "Installing Network Hardware."
- If a diagnostics program is included with your network card, try running the program. See your network-card documentation for details.
- Check the lights (if any) on the back of the network card. See your network-card documentation for details on what the lights indicate.
- Make sure that your network card has been detected correctly. Use Windows Setup to detect your network card, as follows.

► To detect a network card

1. In the Network group, choose the Network Setup icon.
 2. In the Network Setup dialog box, choose Drivers.
 3. In the Network Drivers dialog box, choose Add Adapter.
 4. In the Add Network Adapter dialog box, choose Detect.
- If the network card is not listed in the Add Network Adapter dialog box, you may need to contact the network-adapter vendor for a network-adapter driver that works with Windows for Workgroups.
 - If two devices are using the same interrupt request level (IRQ) or base I/O port, they will not work properly.

See your network-card documentation for information about the settings your card uses. To find out which interrupt levels and base I/O ports on your computer are being used by other devices, you can run the Microsoft Diagnostics (MSD) program included with Windows for Workgroups.

When you set up Windows for Workgroups, MSD is copied to your Windows directory. If you have not yet set up Windows for Workgroups, you can run MSD from the Setup disks.

Note Also, if you already have Windows version 3.1 or Windows for Workgroups version 3.1 on your computer, you can run MSD before setting up Windows for Workgroups version 3.11.

► **To run MSD**

1. Quit Windows (if you are running it).
2. At the command prompt, type **msd** and then press ENTER.
3. Follow the instructions on the screen.

Note MSD does not detect the IRQ and base I/O port used by your network card. For more information about IRQs and base I/O ports, see Appendix C, "Installing Network Hardware."

- You may need to change the configuration settings assigned to your card.

If you have a network card that is configured by using jumpers and switches, you may need to change some of these settings. If you have a software-configured card, use the configuration program that came with your card to change settings. See your network-card documentation for details.

After reconfiguring your network card, you need to specify the new settings by using Windows Setup.

Note If the jumper or DIP-switch settings do not match the network settings that Windows for Workgroups uses, you will not be able to use the network features.

► **To change network-card settings by using Windows Setup**

1. In the Main group, choose the Windows Setup icon.
2. From the Options menu, choose Change Network Settings. The Network Setup dialog box appears.
3. In the Network Adapters And Protocols list, double-click the name of your network card. The dialog box for your network card appears. (If your network card does not appear in the list, see the instructions for detecting a network card, earlier in this section.)
4. Change the settings as needed, and then choose OK.
5. In the Network Setup dialog box, choose OK.

For help with the dialog boxes, choose the Help button or press F1 while using them.

Note If there is an Advanced button in the dialog box for your network card, choose it to see more settings your network card might need.

- If you are using a thin-Ethernet network, make sure you have attached a BNC-style T-connector to the back of your network card. Also, make sure you have attached a terminator to each end of the network. For more information, see Appendix C, “Installing Network Hardware.”
- If your computer cannot detect other computers in a workgroup, make sure that when you configured your network card you specified the correct connector (on the back of the card) to connect to the cable.

Using Microsoft Network Diagnostics to Troubleshoot Networking Problems

Microsoft Network Diagnostics helps a network administrator troubleshoot networking problems. It checks the connection between two computers on the network. It is useful when a computer can connect to the Microsoft Windows Network but cannot connect to a specific shared directory on another computer, or if the computer cannot find any other computers on the network.

Network Diagnostics can perform diagnostics by using either an IPX protocol, such as IPXODI.COM, or a NetBIOS protocol, such as Microsoft NetBEUI.

To run Network Diagnostics, you first need to set up a computer as a *diagnostic server*. If possible, choose a computer that can successfully connect to other computers on the Microsoft Windows Network. If the problem is that you cannot connect to a specific shared directory, the diagnostic server should be the computer that the shared directory is on.

► To set up a diagnostic server for Network Diagnostics

1. Quit Windows. Or choose the MS-DOS Prompt icon in the Main group. Quitting Windows is recommended.
2. Type **net diag** at the command prompt.
3. Network Diagnostics identifies the protocols that are installed on the computer. If more than one protocol is found, you are prompted to select the one you want to use. Select a protocol that is used by all the computers you are going to use in the test.
4. Network Diagnostics then checks the network for other diagnostic servers. If none are found, it prompts you to confirm whether there are any. If there are none, press N. The computer then becomes the diagnostic server.

Now you are ready to run Network Diagnostics on the computer that cannot connect to the network.

► **To run Network Diagnostics**

1. Quit Windows. Or choose the MS-DOS Prompt icon in the Main group. Quitting Windows is recommended.
2. Type **net diag** at the command prompt.
3. Network Diagnostics identifies the protocols that are installed on the computer. If more than one protocol is found, you are prompted to select the one you want to use. Select the protocol you selected when you set up the diagnostic server. Network Diagnostics then tries to detect a diagnostic server on the network. If it does not detect the diagnostic server you have set up, then the network cable may be faulty. Press Y to quit Network Diagnostics.

The following are options available for Network Diagnostics.

Use	To
net diag /?	Display a list of command-line parameters.
net diag /status	Show information about your network adapter's network connection. (Use only for NetBIOS protocols, such as Microsoft NetBEUI.) If you enter the name of another computer on the network, Network Diagnostics shows information about that computer's network connection.
net diag /names	Specify a connection name to use during the diagnostics. If you are using more than one computer as a diagnostic server, the /names option helps you identify the diagnostic server you are connecting to.

Note In the event that the cable is not faulty, there might be a problem with your network card or configuration.

Using Mail

This section contains information to help Mail administrators solve problems they might have when creating or managing the workgroup post office (WGPO).

You cannot create a workgroup post office.

There are several reasons why you may not be able to create a WGPO. Most often, it is because you don't have enough disk space or, if you are creating the WGPO on a server, because you don't have write access to that server. In these cases, find a new location with enough disk space to create your WGPO.

The post office administrator forgets his or her password.

The administrator's password cannot be recovered; the administrator must create a new WGPO.

A user forgets his or her password.

If a user forgets his or her Mail password, you can assign a new password.

► To assign a user a password

1. Sign in to Mail.
2. From the Mail menu, choose Postoffice Manager.
3. In the Postoffice Manager dialog box, select the name of the user, and then choose Details.
4. In the Password box, type a new password, and then choose OK.
5. In the Postoffice Manager dialog box, choose Close.

Now the user can sign in to Mail with the new password.

A message file is corrupted.

If a message file is corrupted, a dialog box appears, giving you the option to repair the message file. You or the user can either repair the file immediately or quit Mail and repair it later. However, the user whose file is corrupted cannot use Mail until the file is repaired.

Using Microsoft At Work PC Fax

The following sections describe possible solutions for problems you might encounter when using Microsoft At Work PC Fax.

If you receive an error message while using PC Fax, use Write to view the README.WRI online document for more information.

You cannot configure or share a modem.

If you try to configure a shared modem in another computer, the Setup button appears dimmed. You can configure a modem in your own computer only.

You tried to send a fax from an application, but your system locked up.

If your system locks up when you try to send a fax from an application, make sure that Mail is running, and then try again.

Mail locks up.

If Mail locks up, it may be because you sent a fax from an application, but canceled the job before it “printed.” From the Fax menu in Mail, choose Queue, and then cancel the fax in the Queue dialog box.

You add a network modem, but you still can't send faxes.

If you cannot send a fax from a shared network modem, check with the person who shared the modem to make sure the Access Type for the modem has been changed to Full or Depends On Password. The default setting for Access Type is Read-Only, which does not enable you to share the modem.

You set up PC Fax, but could not add a fax address to the Personal Address Book.

If you cannot add a fax address to the Personal Address Book, try quitting Mail and restarting it. PC Fax should now be one of the choices in the New Address dialog box.

You attached a document to a fax, and the icon for the document flashes.

If the icon for an attached document flashes, double-click it. A dialog box appears, describing the problem.

You sent a fax by using a shared modem in someone else's computer, but the fax is waiting in the queue.

If a fax you sent by using a shared modem in another computer is suspended in the queue, delete the fax from the queue and try a modem in another computer. A shared modem should be in a computer not regularly used by anyone. Using the computer holds up the processing of faxes.

You want to use a modem speed higher than 9600 bps.

Because many computers have trouble sending and receiving fax data at such high speeds, and because of conflicts with other installed software, PC Fax does not automatically use modem speeds higher than 9600 bps (bits per second).

If your modem supports higher speeds, you can add the following lines to the [COMx] section of your EFAXPUMP.INI file. Be aware that using higher speeds may result in unreliable fax operation or failures, especially on slower machines.

EnableV17Send=1

EnableV17Recv=1

Streamlining the CONFIG.SYS and AUTOEXEC.BAT Files

If you want to troubleshoot a problem yourself, it's best to start with a "minimum" Windows configuration. This means that as a test, you should try removing unused applications, memory-resident programs (TSRs), and unnecessary device drivers from your CONFIG.SYS and AUTOEXEC.BAT files. You can use a text editor, such as Notepad (in the Accessories group), to open and edit these files in Windows. When just a few applications are running with Windows, it's easier to isolate your problem.

Before you make any changes, create a system disk that includes a backup copy of your CONFIG.SYS and AUTOEXEC.BAT files. You can restore these files when you are finished with the troubleshooting tests. You also can use this disk to start your system, if necessary.

You can make a system disk by starting File Manager and then choosing Make System Disk from the Disk menu. Then copy your current CONFIG.SYS and AUTOEXEC.BAT files to the disk. These files are usually located in the root directory of your first hard disk drive, which is typically drive C. If you usually start your system by using a floppy disk, these files are located in the root directory of that disk.

When removing command lines from your CONFIG.SYS and AUTOEXEC.BAT files, make one change at a time. After making one change, test it. If you don't know what a particular command line does in the CONFIG.SYS or AUTOEXEC.BAT file, do not remove it.

Note If you are using disk-compression software (such as DBLSPACE.SYS) or disk-partitioning software (such as DMDVR.BIN), do not remove the command lines that specify it.

You need to restart your computer in order for the change to take effect.

The following is an example of a CONFIG.SYS file that contains the minimum configuration for Windows for Workgroups.

This command line	Does this
files=30	Sets the number of files that MS-DOS can access at one time.
buffers=20	Allocates memory for buffers when your system starts. These buffers help Windows read information faster from your hard disk.
device=c:\windows\himem.sys	Sets up the HIMEM.SYS device driver.
device=c:\windows\ifshlp.sys	Installs the Windows for Workgroups drivers.

The following is an example of an AUTOEXEC.BAT file at a minimum configuration.

This command line	Does this
c:\windows\net start	Enables and starts Microsoft Windows Network drivers.
prompt \$p\$g	Determines the appearance of the command prompt.
path c:;\c:\windows;c:\msdos	Specifies the search path for MS-DOS and Windows. (Some versions of MS-DOS might name this directory something other than \MSDOS.)
set temp=c:\windows\temp	Specifies the directory where temporary files are stored. You may need to create the specified directory if it does not exist. The directory for temporary swap files should be a location that has at least 2 MB of free disk space. For more information about temporary swap files, see your Windows or Windows for Workgroups user's guide.

Microsoft Support Services

If you have a question about Microsoft Windows, first look in the printed documentation, or consult Help. If you cannot find the answer, contact the Microsoft Support Network. You can also find late-breaking updates and technical information by double-clicking the Readme icon in the Main group.

Outside the United States, contact Microsoft Product Support Services at the Microsoft subsidiary office that serves your area. For information about Microsoft subsidiary offices, see "Product Support Worldwide" later in this section.

The Microsoft Support Network

The Microsoft Support Network offers you a wide range of choices and access to high-quality, responsive technical support. Microsoft recognizes that support needs vary from user to user; the Microsoft Support Network enables you to choose the type of support that best meets your needs, with options ranging from electronic bulletin boards to annual support programs.

Services vary outside the United States and Canada. In other locations, contact a local Microsoft subsidiary for information. The Microsoft Support Network is subject to Microsoft's prices, terms, and conditions at the time, and is subject to change without notice.

Product Support Within the United States and Canada

In the United States and Canada, the following support services are available through the Microsoft Support Network.

Electronic Services

These services are available 24 hours a day, 7 days a week, including holidays.

- **Microsoft FastTips:** (800) 936-4200 on a touch-tone telephone. Receive automated answers to common questions, and access a library of technical notes, all delivered by recording or fax. You can use the following keys on your touch-tone telephone after you reach FastTips.

To	Press
Advance to the next message	*
Repeat the current message	7
Return to the beginning of FastTips	#

- **CompuServe:** Interact with other users and Microsoft support engineers, or access the Microsoft Knowledge Base to get product information. At any ! prompt, type **go microsoft** to access Microsoft forums, or type **go mskb** to access the Microsoft Knowledge Base. For an introductory CompuServe membership kit, call (800) 848-8199, operator 230.
- **Microsoft Download Service:** (206) 936-6735 via modem. Access the Driver Library and the most current technical notes (1200, 2400, or 9600 baud; no parity; 8 data bits; 1 stop bit).
- **Internet:** Access the Driver Library and the Microsoft Knowledge Base. The Microsoft Internet FTParchive host, <ftp.microsoft.com>, supports anonymous login. When logging in anonymously, you should type your complete electronic mail name as your password.

Standard Support

No-charge support from Microsoft support engineers is available via a toll call between 6:00 A.M. and 6:00 P.M. Pacific time, Monday through Friday, excluding holidays. This support is available for 90 days after your first call to a support engineer.

- For technical support for Microsoft Windows for Workgroups, call (206) 637-7098.

When you call, you should be at your computer and have the appropriate product documentation at hand. Be prepared to give the following information:

- The version number of Windows that you are using.
- The type of hardware that you are using.
- The exact wording of any messages that appeared on your screen.
- What happened and what you were doing when the problem occurred.
- How you tried to solve the problem.

Priority Support

The Microsoft Support Network offers priority telephone access to Microsoft support engineers 24 hours a day, 7 days a week, except holidays.

- (900) 555-2000; \$2 per minute, \$25 maximum. Charges appear on your telephone bill.
- (800) 936-5700; \$25 per incident, billed to your VISA card, MasterCard, or American Express card.

Text Telephone

Microsoft text telephone (TT/TDD) services are available for the deaf or hard-of-hearing. Using a TT/TDD modem, dial (206) 635-4948 between 6:00 A.M. and 6:00 P.M. Pacific time, Monday through Friday, excluding holidays.

Other Support Options

The Microsoft Support Network offers annual support plans. For information, contact the Microsoft Support Network Sales Group at (800) 936-3500 between 6:00 A.M. and 6:00 P.M. Pacific time, Monday through Friday, excluding holidays.

Product Training and Consultation

Microsoft Solution Providers are independent organizations that provide consulting, integration, customization, development, technical support and training, and other services for Microsoft products. These companies are called Solution Providers because they apply technology and provide services to help solve real-world problems.

For more information about the Microsoft Solution Providers program or the Microsoft Solution Provider nearest to you, call (800) 426-9400 between 6:30 A.M. and 5:30 P.M. Pacific time, Monday through Friday, excluding holidays.

Product Support Worldwide

If you are outside the United States and have a question about Microsoft Windows, first:

- Consult the documentation and other printed information included with Windows.
- Check online Help.
- Check the README files that come with your Windows disks. These files provide general information that became available after the books in the Windows package were published.
- Consult electronic options such as CompuServe forums or bulletin boards, if available.

If you cannot find a solution, you can receive information on how to obtain product support by contacting the Microsoft subsidiary office that serves your country.

The Microsoft Support Network, where available, offers you a wide range of choices and access to high quality, responsive technical support. Microsoft recognizes that support needs vary from user to user; the Microsoft Support Network allows you to choose the type of support that best meets your needs, with options ranging from electronic bulletin boards to annual support programs.

The Microsoft Support Network is subject to Microsoft's prices, terms, and conditions in place in each country at the time the services are used, and is subject to change without notice.

Calling a Microsoft Subsidiary Office

When you call, you should be at your computer and have the appropriate product documentation at hand. Be prepared to give the following information:

- The version number of Windows that you are using.
- The type of hardware that you are using, including network hardware, if applicable.
- The operating system that you are using.
- The exact wording of any messages that appeared on your screen.
- A description of what happened and what you were doing when the problem occurred.
- A description of how you tried to solve the problem.

Microsoft subsidiary offices and the countries they serve are listed as follows.

If there is no Microsoft office in your country, please contact the establishment from which you obtained your Microsoft product.

Area	Telephone numbers
Argentina	Microsoft de Argentina S.A. Phone: (54) (1) 814-5105 (54) (1) 814-4807 (54) (1) 814-4808 (54) (1) 814-7199 Fax: (54) (1) 814-0372
Australia	Microsoft Pty. Ltd. Install and Setup: (61) (02) 870-2870 Fax: (61) (02) 805-1108 Bulletin Board Service: (61) (02) 870-2348 Technical Support: (61) (02) 870-2131 Sales Information Centre: (61) (02) 870-2100
Austria	Microsoft Ges.m.b.H. Phone: 0222 - 68 76 07 Fax: 0222 - 68 16 2710 Information: 0660 - 6520 Prices, updates, etc.: 0660 - 6520 CompuServe: GO MSEURO (Microsoft Central Europe) Technical Support: Windows, Windows for Workgroups: 0660 - 6510
Belgium	Microsoft NV Phone: 02-7303911 Customer Service: 02-7303922 CompuServe: 02-2150530 (GO MSBEN) Bulletin Board Service: 02-7350045 (1200/2400/9600 baud, 8 bits, no parity, 1 stop bit, ANSI terminal emulation) (Dutch speaking) Technical Support: 02-5133274 (English speaking) Technical Support: 02-5023432 (French speaking) Technical Support: 02-5132268
Bolivia	See Argentina
Brazil	Microsoft Informatica Ltda. Phone: (55) (11) 530-4455 Fax: (55) (11) 240-2205 Technical Support Phone: (55) (11) 533-2922 Technical Support Fax: (55) (11) 241-1157 Bulletin Board Service: (55) (11) 65-8564

Area	Telephone numbers
Canada	Microsoft Canada Inc. Phone: 1 (905) 568-0434 Technical Support Phone: 1 (905) 568-3503 Bulletin Board Service: 1 (905) 507-3022 Text Telephone (TT/TDD) 1 (905) 568-9641
Chile	Microsoft Chile S.A. Phone: 56 2 218 5771 56 2 218 5711 56 2 218 7524 Fax: 56 2 218 5747
Colombia	Microsoft Colombia Phone: (571) 618 2245 Technical Support: (571) 618 2255 Fax: (571) 618 2269
Denmark	Microsoft Denmark AS Phone: (45) (44) 89 01 00 Fax: (45) (44) 68 55 10
Dubai	Microsoft Middle East Phone: (971) 4 513 888 Fax: (971) 4 527 444
England	Microsoft Limited Phone: (44) (734) 270000 Fax: (44) (734) 270002 Upgrades: (44) (81) 614 8000 Technical Support: Main Line (All products): (44) (734) 271000 Database Direct Support Line: (44) (734) 271126 Bulletin Board Service: (44) (734) 270065 (2400 baud) Fax Information Service: (44) (734) 270080
Finland	Microsoft OY Phone: (358) (0) 525 501 Fax: (358) (0) 522 955
France	Microsoft France Phone: (33) (1) 69-86-46-46 Telex: MSPARIS 604322F Fax: (33) (1) 64-46-06-60 Technical Support Phone: (33) (1) 69-86-10-20 Technical Support Fax: (33) (1) 69-28-00-28
French Polynesia	See France

Area	Telephone numbers
Germany	Microsoft GmbH Phone: 089 - 3176-0 Telex: (17) 89 83 28 MS GMBH D Fax: 089 - 3176-1000 Information: 089 - 3176 1199 Prices, updates, etc.: 089 - 3176 1199 Bulletin board, device drivers, tech notes : Btx: microsoft# or *610808000# CompuServe: GO MSEURO (Microsoft Central Europe) Technical Support: Windows, Windows for Workgroups: 089 - 3176 - 1110
Greece	Microsoft Hellas, S.A. Phone: (30) (1) 6893 635 Fax: (30) (1) 6893 636
Hong Kong	Microsoft Hong Kong Limited Technical Support: (852) 804-4222 Fax: (852) 560-2217
Ireland	See England
Israel	Microsoft Israel Ltd. Phone: 972-3-575-7034 Fax: 972-3-575-7065
Italy	Microsoft SpA Phone: (39) (2) 269121 Telex: 340321 I Fax: (39) (2) 21072020 Customer Service (Prices, new product information, product literature): (39) (2) 26901359 Bulletin Board: (39) (2) 21072051 Technical Support: Windows, Windows for Workgroups: (39) (2) 26901363
Japan	Microsoft Company Ltd. Phone: (81) (3) 5454-8025 Fax: (81) (3) 5454-7972 Windows: (81) (3) 5454 2330 PSS Technical Support Fax: (81) (3) 5454-7955 Customer Service Phone (Version upgrade/Registration) Phone: (81) (3) 5454 2305 Fax: (81) (3) 5454-7952 Channel Marketing (Pre-sales Product Support) Information Center Phone: (81) (3) 5454-2300 Fax: (81) (3) 5454 7951

Area	Telephone numbers
Korea	Microsoft CH Phone: (82) (2) 552-9505 Fax: (82) (2) 555-1724 Technical Support: (82) (2) 563-5194 Bulletin Board Service: (82) (2) 538-3256
Liechtenstein	See Switzerland (German speaking)
Luxembourg	Microsoft NV Phone: (32) 2-7303911 Customer Service: (32) 2-7303922 CompuServe: (32) 2-2150530 (GO MSBEN) Bulletin Board Service: (32) 2-7350045 (1200/2400/9600 baud, 8 bits, No parity, 1 stop bit, ANSI terminal emulation) (Dutch speaking) Technical Support: (32) 2-5133274 (English speaking) Technical Support: (32) 2-5023432 (French speaking) Technical Support: (32) 2-5132268
México	Microsoft México, S.A. de C.V. Phone: (52) (5) 325-0910 Fax: (52) (5) 280-7940 Technical Support: (52) (5) 325-0912 Customer Service: (52) (5) 325-0911 Bulletin Board Service: (52) (5) 590-5988 (1200/2400 baud, 8 bits, No parity, 1 stop bit, ANSI terminal emulation)
Netherlands	Microsoft BV Phone: 02503-89189 Customer Service: 02503-77700 CompuServe: 020-6880085 (GO MSBEN) Bulletin Board Service: 02503-34221 (1200/2400/9600 baud, 8 bits, No parity, 1 stop bit, ANSI terminal emulation) (Dutch speaking) Technical Support: 02503-77877 (English speaking) Technical Support: 02503-77853
New Zealand	Technology Link Centre Phone: 64 (9) 358-3724 Fax: 64 (9) 358-3726 Technical Support: Applications: 64 (9) 357-5575
Northern Ireland	See England
Norway	Microsoft Norway AS Phone: (47) (22) 18 35 00 Fax: (47) (22) 95 06 64 Technical Support: (47) (22) 02 25 50
Papua New Guinea	See Australia

Area	Telephone numbers
Paraguay	See Argentina
Portugal	Microsoft, Lda. Phone: (351) 1 4412205 Fax: (351) 1 4412101
Republic of China	Microsoft Taiwan Corp. Phone: (886) (2) 504-3122 Fax: (886) (2) 504-3121 Technical Support : (886) (2) 508-9501
Republic of Ireland	See England
Scotland	See England
South Africa	Phone: (27) 11 444 0520 Fax: (27) 11 444 0536
Spain	Microsoft Iberica SRL Phone: (34) (1) 804-0000 Fax: (34) (1) 803-8310 Technical Support: (34) (1) 803-9960
Sweden	Microsoft AB Phone: (46) (8) 752 56 00 Fax: (46) (8) 750 51 58 Technical Support: Applications: (46) (8) 752 68 50 Development and Network products: (46) (8) 752 60 50 Bulletin Board Service: (46) (8) 750 47 42 Fax Information Service: (46) (8) 752 29 00
Switzerland	Microsoft AG Phone: 01 - 839 61 11 Fax: 01 - 831 08 69 Documentation: Phone: 155 59 00 Fax: 064 - 224294, Microsoft Info-Service, Postfach, 8099 Zürich Prices, updates, etc.: 01/839 61 11 CompuServe: GO MSEURO (Microsoft Central Europe) (German speaking) Technical Support: Windows, Windows for Workgroups: 01 - 342 - 4085 (French speaking) Technical Support: 022 - 738 96 88
Uruguay	See Argentina
Venezuela	Corporation MS 90 de Venezuela S.A. Technical Support: 58.2.910046, 58.2.910510 Other information: 58.2.910008, 58.2.914739, 58.2.913342 Fax: 58.2.923835
Wales	See England

Index

- 32-bit disk access
 - checking disk-drive controller compatibility 82
 - setting up 81
 - using on battery-powered computers 81
- 32-bit file access
 - improving performance with 83
 - listing disk drives using 83
 - setting up 82
 - SMARTDrive cache size, reducing 83
- 386 Enhanced icon in Control Panel
 - 32-bit disk access
 - checking disk-drive controller compatibility 82
 - setting up 81
 - 32-bit file access
 - listing disk drives using 83
 - setting up 82
- 3Com 3+Open 85
- 3Com network adapter 135

A

- Access Pack for Microsoft Windows 102
- Accessibility for individuals with disabilities 101–106
- Accessories *See* Network applications
- Accounts, Mail
 - administrator account
 - creating 90–92
 - restriction against removing 96
 - creating 35, 95
 - modifying 95
 - removing 96
- Adapter card, network *See* Network adapter
- Adapter Media Type setting 146
- Address Book, Mail
 - See also* online Help for Mail
 - modifying accounts 95
 - MSMAIL.MMF file, described 98
- Addressing a fax 49
- Administrator account, Mail
 - creating 90–92
 - restriction against removing 96
- Advanced options for network adapters 135
- Advanced Security command, Mail
 - disabling security 56
 - exporting a public key 57
 - importing a public key 57
 - reading key-encrypted faxes 59
 - sending digitally signed or key-encrypted faxes 58
 - setting up and starting security 55–56

- Alphabetic order, sorting files in 25
- Answer Now! command, Mail 52
- Appointments, scheduling *See* Schedule+
- At Work PC Fax *See* PC Fax
- Attachments to faxes
 - sending 49
 - viewing 53
- Audio cassettes of Microsoft documentation 103
- AUTOEXEC.BAT file
 - minimum configuration 154
 - MSCDEX command line 144
 - removing ROUTE.COM 146
 - streamlining when troubleshooting 153–154
- .AWP filename extension 57
- .AWR filename extension 58
- .AWS filename extension 57

B

- Backing up private security keys 58
- Backing up the MSMTP.MMF file 98
- Backup command, Mail 98
- Banyan VINES network 85
- Barrel connector, thin-Ethernet cable 124
- Base I/O port
 - common setting for network adapters 110
 - displaying information about 147
 - table of port numbers for network adapters 114–115
- Base memory address for network adapters
 - common setting 110
 - determining 115
 - excluding 115
- Battery-powered computers, using 32-bit disk access 81
- Blindness and low vision, products and services
 - supporting 103
- BNC T-connector, illustrated 123
- BOOTLOG.TXT file 140
- Braille displays, obtaining 103
- buffers command, CONFIG.SYS file 154
- Bus expansion slots for network adapters 109

C

- Cables, connecting computers to networks
 - overview 122
 - thick-Ethernet system 125–127
 - thin-Ethernet system 123–125
 - token-ring network 130–131
 - twisted-pair Ethernet system 128–129

- Cache, disk
 - default size 82
 - SMARTDrive cache 83
- Calendar *See* Schedule+
- Canceling
 - outgoing faxes 51
 - printing 30
- CAS modems 44
- CD-ROM drive, sharing directories 144
- Central processing unit (CPU), monitoring resource usage 73
- Change Network Settings command, Windows Setup
 - network adapter settings, changing 148
 - protocols, checking 143
- Change Password command, Mail 37
- Chat
 - See also* online Help for Chat
 - described 70
- Chronological order, sorting files in 25
- Class 1 or Class 2 modems 44
- Clipboard
 - See also* ClipBook Viewer
 - copying Local ClipBook pages 64
 - saving the contents of 63
 - viewing the contents of 62
- Clipboard Viewer *See* ClipBook Viewer
- ClipBook
 - See also* ClipBook Viewer
 - connecting to ClipBooks on other computers 65
 - copying pages to the Clipboard 64
 - defined 61
 - disconnecting from ClipBooks on other computers 66
 - Local Clipbook, defined 61
 - page, defined 61
 - saving Clipboard contents 63
 - sharing Local ClipBook pages 64–65
 - viewing Local ClipBook pages 62
- ClipBook Viewer
 - See also* online Help for ClipBook Viewer
 - connecting to ClipBooks on other computers 65
 - copying pages to the Clipboard 64
 - disconnecting from another ClipBook 66
 - embedding or linking objects from another computer 66
 - formats 67
 - illustrated 62
 - length of lines in pasted information 63
 - password, assigning to Local ClipBook pages 65
 - sharing Local ClipBook pages 64–65
 - toolbar 62–63
 - viewing Clipboard contents 62
 - viewing Local ClipBook pages 62
- Closing files in shared directories 24
- .CLP filename extension 63
- CO-NET CD 106
- Colors, adjusting for improved visibility 104, 105
- Communication Application Specification (CAS) modem 44
- Compatible networks 85
- Compose Note command, Mail 37
- Composing Mail messages 37
- CompuServe, accessing Microsoft information 155
- Concentrator (hub), illustrated 129
- CONFIG.SYS file
 - minimum configuration 154
 - streamlining when troubleshooting 153–154
- Configuration disk for network-adapter installation 109
- Configuring fax modems 44–45
- Configuring network-adapter drivers
 - changing settings 136–137
 - installing a driver 133–135
 - removing a driver 136
- Configuring network adapters
 - See also* online Help for Windows Setup
 - base I/O port 114–115
 - base memory address 115
 - connector, specifying 116
 - default settings 110
 - DIP-switch settings 112
 - interrupt request level (IRQ) setting 113–114
 - jumper settings 111
 - settings, recording 113
 - software configuration 121–122
 - troubleshooting 146–149
 - when to configure the adapter 111
- Connect command, ClipBook Viewer 65, 66
- Connect Network Drive command, File Manager
 - connecting to directories on network servers 86
 - connecting to shared directories 22
- Connect Network Printer command, Print Manager 28, 87
- Connecting
 - cables
 - overview 122
 - thick-Ethernet system 125–127
 - thin-Ethernet system 123–125
 - token-ring network 130–131
 - twisted-pair Ethernet system 128–129
 - to ClipBooks on other computers 65
 - to directories on network servers 86–87
 - to network printers 27–28, 87
 - to other networks 85–88
 - to a post office 33–34
 - to shared directories 21–22
 - to shared fax modems 45–46
 - to Windows NT or LAN Manager servers, troubleshooting 145
 - to workgroup computers, troubleshooting 143–144
- Connector jack, illustrated 123
- Connector plug, illustrated 123

Control Panel

See also online Help for Control Panel

32-bit disk access 81–82

32-bit file access 82–83

adjustments for impaired motion or vision 104–105

fax modems

 configuring 44–45

 setting up to share a modem 47

 setting up to use a shared modem 45–46

 stop sharing 48

LAN Manager options, setting 88

logon options, changing 76

logon password, changing 79–80

network events, recording 80

networking enhancements, described xv

startup settings, changing 78–79

Windows NT options, setting 88

workgroup settings, changing 78

Conversing by using Chat 70

Copying

Local ClipBook pages to the Clipboard 64

objects from another computer 66

Countries with Microsoft subsidiaries 158–162

Cursor, adjusting for improved visibility 105

Custom Setup 15

Customer support *See* Microsoft Product Support Services

Customizing network settings

 Control Panel, using 76

 described 75

 enabling and disabling sharing 80–81

 logon options, changing 76

 logon password, changing 79–80

 recording network events 80

 startup settings, changing 78–79

 workgroup settings, changing 77–78

Customizing Windows for Workgroups for improved accessibility 104–105

D

.DCX filename extension 53

Deafness and hard-of-hearing, products and services supporting 102

DEC Pathworks 85

Default printer, selecting 30

Default settings for network adapters 110

Delete command, Mail 40

Delete Document command, Print Manager 30

Deleted Mail folder

 retrieving messages from 40

 saving deleted messages when quitting Mail 41

Deleting

documents waiting to print 30

faxes, outgoing 51

Deleting (continued)

Mail accounts 96

Mail messages 40, 41

network-adapter drivers 136

device commands, CONFIG.SYS file 154

Device drivers for network adapters 133–137

Diagnosing network problems 149–150

Digitally signed faxes

 digital signature, defined 58

 purpose of 54

 sending 58

 using in a nonsecure environment 55

DIP-switch settings for network adapters

 changing by using Windows Setup 148

 changing manually 112

Directories

CD-ROM drive, trouble sharing directories on 144

network servers, connecting to directories on 86–87

sharing

 closing shared files 24

 connecting to shared directories 21–22

 described xii

 disconnecting from network drives 22

 displaying names of people sharing files 24

 how to share directories 23

 how to stop sharing directories 24

 passwords, assigning to shared directories 23

 viewing in the File Manager window 21

Directory windows

drive, changing 21

sorting files in 25

Disabilities, products and services supporting 101–106

Disconnect command, ClipBook Viewer 66

Disconnect Network Drive command, File Manager 22

Disconnect Network Printer command, Print Manager 28

Disconnecting

from ClipBooks on other computers 66

from network drives 22

from network printers 28

workgroup connections, by using Net Watcher 71

Disk access, 32-bit

checking disk-drive controller compatibility 82

setting up 81

using on battery-powered computers 81

Disk cache

default size 82

SMARTDrive cache 83

Disk drives

32-bit disk access 81–82

changing the current drive 21

floppy disk drives, SMARTDrive cache for 83

Disk space

Custom Setup 15

Mail messages, user accounts, and post office 90

Disk space (*continued*)

Mail, maintaining

- checking status of shared folders 96–97
- compressing shared folders 97

PC Fax 43

- system requirements for Windows for Workgroups x, xi

Disks required for network-adaptor installation 109

Domains

- defined 11
- logging on automatically when you start Windows 79
- passwords 79, 88

Download Service, Microsoft (MSDL) 102, 155

Drive, changing the current drive 21

Driver Library, downloading 102, 155

Dvorak keyboard layouts 103

E

EFAXPUMP.INI file 153

EISA bus expansion slot 109

EISA network adapters, software configuration 121–122

Electronic conversations, using Chat 70

Electronic mail *See* Mail

Electronic services for product support 155

Embedding objects from another computer 66

EMM386 memory manager or provider 115, 141

EMMExclude setting, SYSTEM.INI file 115, 141

Encrypted faxes

- described 54, 58
- reading password-encrypted faxes 55
- sending key-encrypted faxes 58
- sending password-encrypted faxes 54

Ethernet

- thick-Ethernet system 125–127
- thin-Ethernet system 123–125
- twisted-pair Ethernet system 128–129

Event log

- recording network events 80
- viewing *See* Net Watcher

Exchanging information

- See also* Chat; Mail; PC Fax; Sharing directories; Sharing printers
- overview of 5

Exit And Sign Out command, Mail 41

Exit command

- Mail 41
- Print Manager 30

Expanded-memory managers, troubleshooting 141

Express Setup 15

Extended Industry Standard Architecture (EISA) 109

F

FastTips, Microsoft 155

Fax application *See* PC Fax

Fax modems

- active fax modem, specifying 46
- CAS modems 44
- Class 1 or Class 2 modems 44
- configuring 44–45
- driver for CAS modems, installing 44
- hardware, installing on a serial port 44
- shared directory for, creating 47–48
- sharing
 - setting up to share a modem 46–48
 - setting up to use a shared modem 45–46
 - stop sharing 48
- telephone line vs. separate line, using 44
- troubleshooting
 - adding a shared modem 152
 - configuring a shared modem 151
 - fax suspended in queue 152
 - modem speed 152

Fax numbers

- See also* Personal Address Book
- National Information System 106
- Recording for the Blind, Inc. 103
- Trace R&D Center 106

Fax Viewer

- See also* online Help for PC Fax
- viewing documents attached to faxes 53

Faxes *See* PC Fax

File access, 32-bit

- improving performance with 83
- listing disk drives using 83
- setting up 82
- SMARTDrive cache size, reducing 83

File Manager

- See also* online Help for File Manager
- drive, changing 21
- mail, sending 25
- new features, described xii
- new items in File Manager window, illustrated 20
- sharing directories
 - closing files in shared directories 24
 - connecting to shared directories 21–22
 - disconnecting from network drives 22
 - displaying names of people sharing files 24
 - how to share directories 23
 - how to stop sharing directories 24
 - passwords, assigning 23
 - sorting files in directory windows 25

File Manager (*continued*)

- system disk, creating 153
- toolbar
 - buttons for displaying files 25
 - buttons for sharing directories 21
- viewing different drives and directories 21

Files

- security 23
- sharing
 - access to shared files 23
 - connecting to shared directories 21–22
- sorting in directory windows 25

files command, CONFIG.SYS file 154

Finding computers on the network, troubleshooting 143–144

Floppy disk drives, reducing the SMARTDrive cache size 83

Folders, Mail

- See also* online Help for Mail
- checking status of shared folders 96–97
- compressing shared folders 97

Fonts, adjusting for improved visibility 104, 105

Forwarding faxes 53

G

Gateways

- See also* MAIL.WRI online document
- described 99

Graphics mode, printing in 30

Grounded terminator

- thick-Ethernet system 127
- thin-Ethernet system 124

H

Handicaps, products and services supporting 101–106

Hardware detection by Setup, skipping 139, 141

Hardware requirements x, xi

Hardware settings

- correcting after running Setup 140
- table for recording 113

Help, online xv

Hub (concentrator), illustrated 129

I

IBM LANServer 85

Impaired hearing, motion, or vision 101–106

Improving performance

- 32-bit disk access 81–82
- 32-bit file access 82–83

Inbox in Mail, illustrated 36

Industry Standard Architecture (ISA) 109

Insertion point, adjusting for improved visibility 105

Installing network adapters

- configuring the adapter
 - base I/O port 114–115
 - base memory address 115
 - connector, specifying 116
 - DIP-switch settings 112
 - hardware settings, recording 113
 - interrupt request level (IRQ) setting 113–114
 - jumper settings 111
 - software configuration 121–122
 - when to configure the adapter 111

connecting cables

- overview 122
- thick-Ethernet system 125–127
- thin-Ethernet system 123–125
- token-ring network 130–131
- twisted-pair Ethernet system 128–129

drivers for, installing 133–135

overview 107

placing the adapter in your computer 116, 118–121

required items 108–109

second adapter, installing 107

troubleshooting 146–149

International format for fax numbers 59

International Product Support Services 157–162

Internet, accessing Microsoft information 155

Interrupt request level (IRQ) setting

- common setting for network adapters 110
- determining for network adapters 113–114
- obtaining information about 147

Interrupting printing 30

IPX protocol 137

IRQ *See* Interrupt request level (IRQ) setting

ISA bus expansion slot 109

ISA network adapters, software configuration 122

J

Jumper settings for network adapters

- changing by using Windows Setup 148
- changing manually 111

K

Key encryption

- described 54, 58
- sending key-encrypted faxes 58

Keyboard

- adjustments for impaired motion 105
- Dvorak layouts for individuals with impaired motion 103

Keys, security

- defined 54
- private keys, backing up or restoring 58
- public keys
 - exchanging 56
 - exporting to floppy disk 57
 - importing from floppy disk 57
- setting up 55

Knowledge Base, Microsoft 155

L

LAN Manager

- connecting to servers, troubleshooting 145
- logging on automatically when you start Windows 79
- passwords 79, 88
- server not listed in Connect dialog boxes 144
- setting options in Control Panel 88
- WinPopup, sending and receiving messages 73–74

Linking objects from another computer 66

Local ClipBook *See* ClipBook

Log On/Off icon, using 70–71

Logging network events 80

Logging on to or off of the Microsoft Windows
Network 70, 77

Logging on to Windows for Workgroups

- how to log on 16–17
- startup settings, changing 78–79
- without a password 79

Logon name 16, 17

Logon options, changing 76

Logon password

- changing 79–80
- logging on to Windows for Workgroups 17
- what to do if you forget your password 143

Low vision, products and services supporting 103

LPT ports, defined 15

M

Mail

- See also* Maintaining Mail; online Help for Mail
- account, creating 35, 95
- adding yourself to the post office 35
- administrator *See* Maintaining Mail
- connecting to a post office 33–34
- deleting messages 40, 41
- described xiii
- disk space requirements 90

Mail (*continued*)

faxes

See also PC Fax

- addressing 49
- sending 48–49

File Manager, sending mail from 25

fonts, adjusting 104

gateways for other message systems 99

Inbox, illustrated 36

mailbox name, assigning 35

managing *See* Maintaining Mail

message file 41, 151

options for deleting messages 41

password

- assigning 35
- changing 37
- supplying automatically 36

preparing to use 33–34

quitting 41

reading messages 38–39

replying to messages 39–40

security 37

sending messages 37–38

signing in 36

starting 34

using with other message systems 99

MAIL.WRI online document xvi

Mailbox, assigning a name for 35

Maintaining Mail

See also MAIL.WRI online document

accounts

- creating 35, 95
- modifying 95
- removing 96

administrator account

- creating 90–92
- restriction against removing 96

backing up the MSMAIL.MMF file 98

disk space

- checking status of shared folders 96–97
- compressing shared folders 97
- managing, described 96
- requirements 90

MSMAIL.INI file, described 98

MSMAIL.MMF file

- backing up 98
- described 98
- restoring 98

post office

- adding a person's name to 94–95
- creating 90–92
- post office computer, leaving on at all times 91
- sharing the post office directory 93

- Maintaining Mail (*continued*)
- Postoffice Manager
 - described 89
 - starting 94
 - PostOffice Upgrade for Microsoft Windows for Workgroups 89
 - system files, described 97–98
 - troubleshooting
 - corrupted message file 151
 - Mail locks up when you send a fax 152
 - passwords 151
 - post office, creating 150
- Make System Disk command, File Manager 153
- MAU (multistation access unit) 131
- MCA bus expansion slot 109
- MCA network adapters, software configuration 121–122
- Meetings, scheduling *See* Schedule+
- Memory
 - net start basic command 145
 - system requirements x, xi
- Memory-resident programs (TSRs)
 - conflicting with the Setup program 140
 - removing when troubleshooting 153
- Message file, Mail 41, 151
- Message systems and gateways *See* MAIL.WRI online document
- Messages
 - Chat 70
 - fax *See* PC Fax
 - Mail messages
 - See also* online Help for Mail
 - deleting 40, 41
 - reading 38–39
 - replying to 39–40
 - sending 37–38
 - startup messages, recording 140
 - WinPopup 73–74
- Microsoft At Work PC Fax *See* PC Fax
- Microsoft Diagnostics (MSD) program
 - determining address space to exclude 141
 - running 148
- Microsoft Download Service (MSDL) 102, 155
- Microsoft Driver Library 102, 155
- Microsoft FastTips 155
- Microsoft Knowledge Base 155
- Microsoft LAN Manager *See* LAN Manager
- Microsoft Mail PostOffice Upgrade for Microsoft Windows for Workgroups 89
- Microsoft Network Diagnostics, running 149–150
- Microsoft Product Support Services
 - See also* card enclosed with product
 - outside the United States 157–162
 - text telephone (TT/TDD) service 102
 - within the United States 154–157
- Microsoft Sales and Service 102
- Microsoft Solution Providers 156
- Microsoft subsidiaries 157–162
- Microsoft Support Network 155–157
- Microsoft Support Network Sales Group 156
- Microsoft Windows for Workgroups version 3.1, upgrading from xi
- Microsoft Windows for Workgroups version 3.11
 - See* Windows for Workgroups version 3.11
- Microsoft Windows Network
 - compatible networks 85
 - logging on or off 70–71, 77
 - sharing resources on computers running other networks 85–88
 - troubleshooting 143–145
- Microsoft Windows NT Advanced Server 85
- Microsoft Windows NT operating system *See* Windows NT operating system
- Microsoft Windows version 3.1, upgrading from x–xi
- Microsoft Workgroup Add-On for Windows
 - See also* Windows for Workgroups version 3.11
 - features, described ix, xii–xv
 - requirements, hardware and software x, xi
- Modems *See* Fax modems
- Monitoring CPU or printer use 73
- Motion impairment, products and services supporting 103
- Mouse, adjusting for impaired motion or vision 105
- MS-DOS operating system, required version x, xi
- MSCDEX.EXE version 2.22 144
- MSD (Microsoft Diagnostics) program
 - determining address space to exclude 141
 - running 148
- MSMAIL.INI file
 - See also* MAIL.WRI online document
 - adjustments for impaired vision 104
 - described 98
- MSMAIL.MMF file
 - backing up 98
 - described 98
 - restoring 98
- Multistation access unit (MAU) 131
- N**
- N-series terminator, illustrated 127
- National Information System 106
- net diag command (Microsoft Network Diagnostics) 149, 150
- net start basic command 145
- net start full command 145
- Net Watcher
 - See also* online Help for Net Watcher
 - described 71
 - displaying names of people sharing files 24
 - displaying names of people sharing printers 29

- NetBEUI protocol 137
- Network-adapter drivers
 - changing settings 136–137
 - installing 133–135
 - removing 136
- Network adapters, installing
 - See also* Network-adapter drivers; online Help for Windows Setup
 - compatibility, checking 109
 - configuring the adapter
 - base I/O port 114–115
 - base memory address 115
 - connector, specifying 116
 - DIP-switch settings 112
 - hardware settings, recording 113
 - interrupt request level (IRQ) setting 113–114
 - jumper settings 111
 - software configuration 121–122
 - when to configure the adapter 111
 - connecting cables
 - overview 122
 - thick-Ethernet system 125–127
 - thin-Ethernet system 123–125
 - token-ring network 130–131
 - twisted-pair Ethernet system 128–129
 - detecting a network adapter 147
 - excluding the base memory address 115
 - overview 107
 - placing the adapter in your computer 116, 118–121
 - required items 108–109
 - second adapter, installing 107
 - troubleshooting 146–149
- Network applications
 - Chat 70
 - Log On/Off 70
 - Net Watcher 71
 - overview of xiv
 - Schedule+ 72
 - startup settings, changing 79
 - WinMeter 73
 - WinPopup 73–74
- Network card *See* Network adapter
- Network Drivers dialog box, illustrated 134
- Network drives
 - automatically reconnecting to 22
 - connecting to shared directories 21–22
 - defined 21
 - disconnecting from 22
- Network group 69
- Network printers
 - automatically reconnecting to 28
 - connecting to 27–28, 87
 - disconnecting from 28
- Network printers (*continued*)
 - passwords, assigning 29
 - port, selecting 28
- Network servers, connecting to directories on 86–87
- Network settings
 - Adapter Media Type setting, checking 146
 - changing networks 86
 - customizing
 - Control Panel, using 76
 - described 75
 - enabling and disabling sharing 80–81
 - logon options, changing 76
 - logon password, changing 79–80
 - network events, recording 80
 - startup settings, changing 78–79
 - Windows Setup, using 80–81
 - workgroup settings, changing 78
 - LAN Manager 88
 - Novell NetWare, checking setup for 146
 - Windows NT 88
- Network Setup icon
 - Adapter Media Type setting, checking 146
 - changing networks 86
 - enabling and disabling sharing 81
 - network adapters
 - changing driver settings 136–137
 - detecting 147
 - installing drivers for 133–135
 - Novell NetWare, checking setup for 146
 - sharing resources, setting options for 20
- Networks
 - See also* NETWORKS.WRI online document
 - changing networks 86
 - compatible with Microsoft Windows Network 85
 - connecting to directories on network servers 86–87
 - connecting to network printers 87
 - Control Panel features, described xv
 - defined 1
 - event log, recording network events 80
 - hardware requirements x, xi
 - new networking features, described xii
 - options in Control Panel, setting 88
 - overview of networking 1–11
 - post office, creating on a network 91
 - setting up 85–86
 - setting up to share resources 20
 - supported by Windows for Workgroups 14
 - troubleshooting
 - connecting to Novell NetWare servers 145–146
 - connecting to Windows NT or LAN Manager servers 145
 - diagnosing connection problems 149–150
 - LAN Manager server not listed 144

Networks (*continued*)troubleshooting (*continued*)

- Microsoft Network Diagnostics, running 149–150
- network adapter settings, changing 148
- network features not available 142
- Novell NetWare server not listed 146
- other computers not listed 143–144
- protocols, checking 143
- starting the network before Windows 145

NETWORKS.WRI online document xvi

NIS (National Information System) 106

Novell NetWare

- checking network settings in Windows 146
- compatibility with Microsoft Windows Network 85
- troubleshooting
 - connecting to servers 145–146
 - server not listed in Connect dialog box 146

O

Object linking and embedding (OLE)

- format limitations 67
- using ClipBook Viewer 66

Online documentation, described xv–xvi

Online Help xv

Online Tutorial xv

Open New Window On Connect command, File Manager 22

Options command, Mail

- deleting mail, options for 41
- sending digitally signed or key-encrypted faxes 58
- setting global fax options 50

Order of files in directory windows, changing 25

P

Parallel port, defined 15

Password-list file 17

Passwords

- Depends On Password option 23
- domain passwords 80, 88
- fax security password 56
- faxes, password-encrypted
 - reading 55
 - sending 54
- files, protecting 23
- Local ClipBook pages 65
- logon password
 - changing 79–80
 - logging on without using a password 79
 - logging on to Windows for Workgroups 17
 - what to do if you forget your password 143

Passwords (*continued*)

Mail password

- assigning 35
- changing 37
- supplying automatically 36
- what to do if you forget your password 151

printer passwords, assigning 29

shared directories, assigning passwords to 23

troubleshooting

logon passwords 143

Mail passwords 151

Paste command

embedding or linking objects 66

saving Clipboard contents 63

Paste Link command 66

Paste Special command 67

path command, AUTOEXEC.BAT file 154

Path for a shared directory, format of 21

Pausing printers or documents 30

PC Fax

See also online Help for PC Fax

addressing a fax 49

advanced dialing feature 59

attachments to faxes

sending 49

viewing 53

deleting outgoing faxes 51

described xiii

digital signatures

purpose of 54

using in a nonsecure environment 55

fax numbers, entering 50

forwarding faxes 53

international dialing 59

options for sending faxes, setting

global options 50

individual fax 51

queue of faxes, using 51

reading faxes 52–53

receiving faxes 52

rescheduling outgoing faxes 51

security

backing up or restoring private keys 58

described 54

disabling 56

exchanging security keys 56

fax security password 56

reading key-encrypted faxes 59

reading password-encrypted faxes 55

sending digitally signed faxes 58

sending key-encrypted faxes 58

sending password-encrypted faxes 54

setting up and starting security 55–56

PC Fax (*continued*)

- sending faxes
 - described 48
 - formatting in attached documents 49
 - from Mail 48–49
 - using the Print command 49
 - using the Send command 49
- setting up
 - active fax modem, specifying 46
 - configuring fax modems 44–45
 - disk space required 43
 - driver for CAS modems, installing 44
 - fax modem hardware, installing 44
 - sharing fax modems 45–48
- telephone line vs. separate line for fax transmissions 44
- troubleshooting
 - attaching documents to faxes 152
 - fax addresses, trouble adding to the Personal Address Book 152
 - fax suspended in queue 152
 - Mail locks up 152
 - modem speed 152
 - shared modem, adding 152
 - shared modem, configuring 151
 - system locks up when you send a fax 151
- TrueType fonts, using 49
- Performance, improving
 - 32-bit disk access 81–82
 - 32-bit file access 82–83
- Personal Address Book
 - See also* online Help for PC Fax
 - fax numbers, entering 50
 - international format for fax numbers 59
 - storing names of people you send messages to 38
 - trouble adding fax addresses to 152
- Portable computers, using 32-bit disk access 81
- Ports
 - See also* Base I/O port
 - defined 27
 - parallel, defined 15
 - selecting for network printers 28
 - serial, defined 15
- Post office
 - See also* MAIL.WRI online document
 - adding a person's name to 94–95
 - connecting to 33–34
 - creating 90–92
 - disk space requirements 90
 - MSMAIL.INI file 98
 - post office computer, leaving on at all times 91
 - sharing the post office directory 93
 - troubleshooting 150
 - users connected to different post offices 89

Postoffice Manager

- adding a person's name to the post office 95
- compressing shared folders 97
- described 89
- location of the Postoffice Manager command 93
- modifying accounts 95
- removing accounts 96
- starting 94

PostOffice Upgrade for Microsoft Windows for Workgroups 89

Print command, sending a fax 49

Print Manager

- See also* online Help for Print Manager
- default printer, selecting 30
- deleting documents waiting to print 30
- described 26
- network printers
 - connecting to 27–28
 - defined 26
 - disconnecting from 28
 - how to share printers 29
 - how to stop sharing printers 29
 - passwords, assigning 29
 - reconnecting to automatically 28
- new features, described xii
- pausing and resuming printing 30
- quitting 30
- toolbar
 - buttons for controlling documents and printers 31
 - buttons for sharing printers 26–27

Printers

- See also* PRINTERS.WRI online document; Printing
- connecting to network printers 27–28, 87
- default printer, selecting 30
- disconnecting from a network printer 28
- monitoring the use of 73
- passwords, assigning 29
- pausing 30
- port, selecting for a network printer 28
- print queue 26
- reconnecting to automatically 28
- sharing 29

PRINTERS.WRI online document xvi

Printing

- deleting documents waiting to print 30
- described xii
- notification messages, receiving from WinPopup 73–74
- pausing printers or documents 30
- print queue 26

Private security keys

- backing up or restoring 58
- defined 54
- setting up 55

Product releases, notification of xvi
Product Support Services
 See also card enclosed with product
 outside the United States 157–162
 text telephone (TT/TDD) service 102
 within the United States 154–157
Product training and consultation 156
prompt command, AUTOEXEC.BAT file 154
Properties command, File Manager
 closing files in shared directories 24
 listing users of files in shared directories 24
Protecting files by using passwords 23
PROTOCOL.INI file 144
Protocols
 checking 143
 network adapters 136–137
PSS *See* Product Support Services
Public security keys
 defined 54
 exchanging 56
 exporting to disk 57
 importing from disk 57
 setting up 55
Publications on audio cassettes and floppy disks 103
.PWL filename extension 143

Q

Queue command, Mail 51
Queues
 fax 51
 print 26
Quitting
 Mail 41
 Print Manager 30

R

RAM address space, excluding 141
RAM start address for network adapters 115
Random-access memory (RAM), excluding address space 141
Read-only memory (ROM), excluding address space 141
Reading faxes 52–53
Reading Mail messages 38–39
README.WRI online document xvi
Receiving faxes 52
Receiving messages
 See also Receiving faxes
 Chat 70
 Mail 38–39
 WinPopup 73–74
Recording for the Blind, Inc. 103
Reference disk for network-adaptor installation 109

Registering your copy of Windows for Workgroups xvi
Removing
 documents waiting to print 30
 faxes, outgoing 51
 Mail accounts 96
 Mail messages 40, 41
 network-adaptor drivers 136
Reply command, Mail 40
Replying to Mail messages 39–40
Rescheduling outgoing faxes 51
Resetting your printer 30
Resources, sharing
 See also Sharing directories; Sharing printers
 connecting to resources, described 8–10
 overview of 6–7
Restoring private security keys 58
Restoring the MSMAIL.MMF file 98
Revisions to Windows for Workgroups, notification of xvi
RFB (Recording for the Blind, Inc.) 103
RJ-45 connector, illustrated 128
ROM address space, excluding 141
ROUTE.COM, removing from the AUTOEXEC.BAT file 146

S

Saving Clipboard contents 63
SCHDPLUS.INI file 105
Schedule+
 See also online Help for Schedule+
 colors, adjusting 105
 described xiii, 72
 fonts, adjusting 105
 quitting Mail while running 41
Scheduling appointments *See* Schedule+
Screen readers, obtaining 103
Screen-enlargement utilities, obtaining 103
Security
 See also Passwords
 file access 23
 Mail 37
 PC Fax
 backing up or restoring private keys 58
 described 54
 disabling security 56
 exchanging security keys 56
 fax security password 56
 reading key-encrypted faxes 59
 reading password-encrypted faxes 55
 sending digitally signed faxes 58
 sending key-encrypted faxes 58
 sending password-encrypted faxes 54
 setting up and starting security 55–56
Select Computer dialog box, ClipBook Viewer 65, 66

- Selection cursor, adjusting for improved visibility 105
- Sending faxes
 - described 48
 - formatting in attached documents 49
 - from Mail 48–49
 - key-encrypted or digitally signed 58
 - password-encrypted 54
 - Print command, using 49
 - Send command, using 49
 - troubleshooting
 - adding a shared modem 152
 - fax suspended in queue 152
 - Mail locks up 152
 - modem speed 152
 - system locks up 151
 - TrueType fonts, using 49
- Sending messages
 - See also* Sending faxes
 - Chat 70
 - Mail 37–38, 39–40
 - WinPopup 73–74
- Serial ports, defined 15
- Servers
 - connecting to directories on 86–87
 - defined 11
- set command, AUTOEXEC.BAT file 154
- Set Default Printer command, Print Manager 30
- Setting up Mail
 - See also* Maintaining Mail
 - creating an account 35, 95
- Setting up network adapters
 - base I/O port 114–115
 - base memory address 115
 - connector, specifying 116
 - default settings 110
 - DIP-switch settings 112
 - hardware settings, recording 113
 - interrupt request level (IRQ) setting 113–114
 - jumper settings 111
 - software configuration 121–122
 - troubleshooting 146–149
- Setting up networks 85–86
- Setting up PC Fax
 - active fax modem, specifying 46
 - configuring fax modems 44–45
 - disk space required 43
 - driver for CAS modems, installing 44
 - hardware for fax modems, installing 44
 - sharing fax modems
 - setting up to share a modem 46–48
 - setting up to use a shared modem 45–46
 - telephone line vs. separate line, using 44
- Setting up sharing 19–20
- Setting up the workgroup post office (WGPO) 90–92
- Setting up Windows for Workgroups
 - Custom Setup 15
 - Express Setup 15
 - for use with other networks 85–86
 - running Setup 13–14
 - setting options for sharing resources 20
 - troubleshooting 140–141
- setup command 14
- setup /i command 139, 141
- Setup program
 - Custom Setup 15
 - Express Setup 15
 - hardware detection, skipping 139, 141
 - running 13–14
 - troubleshooting
 - conflicting memory-resident program (TSR) 140
 - Windows won't start after Setup 140–141
 - your system locks up during Setup 139
- SETUP.TXT online document xvi
- Share As command, File Manager
 - sharing directories and setting options for sharing 23
 - sharing the post office 93
- Share command, ClipBook Viewer 64
- Share name, format of 21
- Share Printer As command, Print Manager 29
- Shared Mail folders
 - checking the status of 96–97
 - compressing 97
- Sharing ClipBook pages
 - embedding or linking objects from another computer 66
 - how to share Local ClipBook pages 64
 - how to stop sharing Local ClipBook pages 65
- Sharing directories
 - CD-ROM drive 144
 - closing shared files 24
 - connecting to shared directories 21–22
 - described xii
 - disconnecting from a network drive 22
 - displaying names of people sharing files 24
 - enabling and disabling sharing 80–81
 - fax modem, creating a shared directory for 47–48
 - File Manager window, illustrated 20
 - how to share directories 23
 - how to stop sharing directories 24
 - network servers, connecting to directories on 86–87
 - passwords, assigning 23
 - setting up sharing 19–20
- Sharing fax modems
 - creating a shared directory for a fax modem 47–48
 - setting up to share a modem 46–48
 - setting up to use a shared modem 45–46
 - stop sharing 48

Sharing information

See also Chat; Mail; PC Fax; Sharing directories;
Sharing printers
overview of 5

Sharing printers

connecting to network printers 27–28, 87
described xii
disconnecting from a network printer 28
displaying names of people sharing printers 29
enabling and disabling sharing 80–81
how to share printers 29
how to stop sharing printers 29
network printers, connecting to 87
passwords, assigning 29
setting up sharing 19–20

Sight impairment, products and services supporting 103

Signing in to Mail 36

Single-handed typing, keyboard layouts for 103

SMARTDrive cache 83

Software requirements x, xi

Solution Providers, Microsoft 156

Sorting files in directory windows 25

Speeding up applications

32-bit disk access 81–82
32-bit file access 82–83

Starting

Mail 34

Postoffice Manager 94

Windows for Workgroups

network features, troubleshooting 140, 142
starting and logging on 16–17
starting the network before Windows 145
without the network 140

WinPopup 74

Startup messages, recording 140

Startup options for LAN Manager or Windows NT 88

Startup settings, changing 78–79

Stop Sharing command

ClipBook Viewer 65

File Manager 24

Stop Sharing Printer command, Print Manager 29

Subsidiaries, Microsoft 157–162

Support Network, Microsoft 155–157

Support services for individuals with disabilities 101–106

SYSINI.WRI online document xvi

System disk, creating 153

System Information screen, correcting hardware settings 140

SYSTEM.INI file

See also SYSINI.WRI online document
adjustments for impaired motion or vision 104
EMMExclude setting 115, 141
password list, creating 143
VirtualHDirq setting 141

System requirements x, xi

T

T-connector, illustrated 123

Tables

base I/O port numbers 114–115
hardware settings 113
interrupt request level (IRQ) settings 113
thick-Ethernet system components 126–127
thin-Ethernet system components 123–124
token-ring network components 131
twisted-pair Ethernet system components 128–129
Workgroup Add-On requirements x, xi

TDD/TT (text telephone) service 102

Technical support *See* Microsoft Product Support Services

Telephone numbers

CompuServe membership kit 155
Microsoft Download Service (MSDL) 102, 155
Microsoft FastTips 155
Microsoft Product Support Services 102, 156–157
Microsoft Sales and Service 102
Microsoft subsidiaries 158–162
Microsoft Support Network Sales Group 156
National Information System 106
Recording for the Blind, Inc. 103
text telephone (TT/TDD) service 102
Trace R&D Center 106

Terminators

thick-Ethernet system 126–127
thin-Ethernet system 124

Text files, online xvi

Text telephone (TT/TDD) service 102

Thick-Ethernet system 125–127

Thicknet system 125–127

Thin-Ethernet system 123–125

Thinnest system 123–125

Token-ring network 130–131, 146

Toolbar, ClipBook Viewer

buttons, illustrated and described 62–63
connecting to another ClipBook 65
copying Local ClipBook pages 64
disconnecting from another ClipBook 66
embedding or linking objects 66
saving Clipboard contents 63
sharing Local ClipBook pages 64
stop sharing Local ClipBook pages 65

Toolbar, File Manager

buttons for displaying files 25
buttons for sharing directories 21
connecting to directories on network servers 86
connecting to shared directories 22
disconnecting from shared directories 22
drive, changing 21
mail, sending 25
sharing directories and setting options for sharing 23

Toolbar, File Manager (*continued*)
 sharing the post office 93
 stop sharing a directory 24

Toolbar, Mail
 deleting a Mail message 40
 replying to a Mail message 40
 sending a fax 48
 sending a Mail message 37
 sending a password-encrypted fax 54

Toolbar, Print Manager
 buttons for controlling documents and printers 31
 buttons for sharing printers 26–27
 canceling printing 30
 connecting to network printers 28, 87
 default printer, selecting 30
 disconnecting from network printers 28
 sharing printers and setting options for sharing 29
 stop sharing a printer 29

Trace R&D Center 106

Training and consultation services 156

Transceiver, thick-Ethernet system 126, 127

Transferring information
 See also Chat; Mail; PC Fax; Sharing directories;
 Sharing printers
 overview of 5

Troubleshooting
 AUTOEXEC.BAT file, streamlining 153–154
 CONFIG.SYS file, streamlining 153–154
 expanded-memory managers 141
 Mail
 corrupted message file 151
 passwords 151
 post office, creating 150
 messages from startup, recording 140
 Microsoft Network Diagnostics, running 149–150
 MSD (Microsoft Diagnostics) program, running 148
 network adapters
 DIP-switch settings 148
 interrupt request level (IRQ) 147
 jumper settings 148
 overview 146–147
 network connections 149–150
 network features
 CD-ROM drive, sharing directories 144
 connecting to a Windows NT or LAN Manager
 server 145
 LAN Manager server not listed 144
 logon password, what to do if you forget it 143
 network features not available 142
 other computers not listed 143–144
 starting the network before Windows 145

Novell NetWare
 connecting to servers 145–146
 server not listed in Connect dialog box 146

Troubleshooting (*continued*)
 passwords
 logon password 143
 Mail passwords 151

PC Fax
 attaching documents to faxes 152
 fax addresses, trouble adding to the Personal
 Address Book 152
 fax suspended in queue 152
 Mail locks up 152
 modem speed 152
 shared modem, adding 152
 shared modem, configuring 151
 system locks up when you send a fax 151

setting up Windows for Workgroups
 conflicting memory-resident program (TSR) 140
 Setup program stops before completing 139
 Windows won't start after Setup 140–141
 your system locks up 139

starting the network before Windows 145
 starting Windows for Workgroups 140–141
 starting Windows without the network 140

TrueType fonts, using with PC Fax 49

TT (text telephone) service 102

Tutorial, online xv

Twisted-pair Ethernet system 128–129

Typing with a single hand, keyboard layouts for 103

Typing with motion impairment, keyboard layouts for 103

U

Upgrades of Windows for Workgroups, notification of xvi

Upgrading
 from Windows for Workgroups version 3.1 xi
 from Windows version 3.1 x–xi

V

Virtual Memory options
 enabling 32-bit disk access 81
 enabling 32-bit file access 82

VirtualHDirq setting, SYSTEM.INI file 141

Vision impairment, products and services supporting 103

Voice-output screen readers, obtaining 103

W

WGPO *See* Workgroup post office

win command
 creating the BOOTLOG.TXT file 140
 EMMExclude option 140
 using without command-line options 16
 VirtualHDirq option 141

- win /b command 140
- win /d:v command 141
- win /d:x command 140
- win /n command 140
- Windows Driver Library, downloading 102, 155
- Windows for Workgroups version 3.1, upgrading from xi
- Windows for Workgroups version 3.11
 - See also* Improving performance; Troubleshooting
 - Access Pack for Windows, obtaining 102
 - adjustments for impaired motion or vision 104–105
 - described ix
 - Dvorak keyboard layouts, obtaining 103
 - logging on
 - how to log on 16–17
 - startup settings, changing 78–79
 - without a password 79
 - new features, described ix, xii–xv
 - overview of networking 1–11
 - registering xvi
 - setting up
 - Custom Setup 15
 - Express Setup 15
 - for use with other networks 85–86
 - running Setup 13–14
 - setting options for sharing resources 20
 - troubleshooting 139–141
 - starting 16
 - starting without the network 140
- Windows NT Advanced Server 85
- Windows NT operating system
 - connecting to servers, troubleshooting 145
 - logging on to a domain automatically 79
 - passwords 79, 88
 - setting options in Control Panel 88
 - sharing resources 85
 - WinPopup, sending and receiving messages 73–74
- Windows Online Tutorial xv
- Windows Setup icon
 - network adapter settings, changing 148
 - protocols, checking 143
- Windows Setup program *See* Setup program
- Windows version 3.1, upgrading from x–xi
- WIN.INI file
 - See also* WININI.WRI online document
 - adjustments for impaired motion or vision 104
- WININI.WRI online document xvi
- WinMeter, described 73
- WinPopup
 - See also* online Help for WinPopup
 - described 73–74
 - starting 74
 - startup setting for 79
- Workgroup Add-On for Windows
 - See also* Windows for Workgroups version 3.11
 - features, described ix, xii–xv
 - requirements, hardware and software x, xi
- Workgroup post office (WGPO)
 - See also* MAIL.WRI online document
 - adding a person's name to 94–95
 - computer, leaving on at all times 91
 - connecting to 33–34
 - creating 90–92
 - disk space requirements 90
 - MSMAIL.INI file 98
 - sharing the post office directory 93
 - troubleshooting 150
 - users connected to different post offices 89
- Workgroups
 - Chat messages, exchanging 70
 - closing files in shared directories 24
 - defined 2
 - monitoring connections and shared resources 71
 - monitoring CPU or printer use 73
 - overview of 2–7
 - setting up sharing of resources 19–20
 - settings, changing 78
 - sharing directories
 - connecting to shared directories 21–22
 - disconnecting from network drives 22
 - displaying names of people sharing files 24
 - how to share directories 23
 - how to stop sharing directories 24
 - passwords, assigning 23
 - sharing printers
 - connecting to network printers 27–28
 - disconnecting from a network printer 28
 - how to share printers 29
 - how to stop sharing printers 29
 - passwords, assigning 23

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